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No. 7

Seventh Annual Farmers' and Fruit Growers' Week

*James & Junt
Garden Week*

Again the time for Farmers' and Fruit Growers' Week at the College of Agriculture, University of Florida, is drawing near. The event had been scheduled for the week of August 13 — 18 this year, and the program is being arranged.

This will be the seventh annual Farmers' Week, the first one having been held in 1922. However, farmers' meetings—citrus seminars and livestock roundups—were held at the College from 1909 to 1921. So this will really be the nineteenth year in which farmers' meetings have been held at the College of Agriculture.

Those in charge of the week emphasize three things—education, recreation, vacation. Of course the prime object of the week is education. College authorities, in working up the program, include enough of the fundamentals to be of interest to new visitors, and enough of new developments to be of interest to everybody.

While the services of the College—particularly the Agricultural Extension Division and Experiment Station—are available to Florida farmers and growers throughout the year, this is the one week in the year when adult farmers and farm women can actually come to the College and go to school, having the instruction planned with their especial needs in view.

While some growers may know in a general way nearly everything that

is brought out on the program during the week, it is the exception when a man comes up to the College for a week, rubs elbows with fellow growers, listens to the programs, and goes home without having learned something of value. Following that, the week will have been worth while from the standpoint of recreation and vacation. On too many farms, life is just continual work, work, work, with no time for play. A little rest and recreation will make all members of the family feel more like tackling the job when they get home.

The program for Farmers' Week is under the direct supervision of members of the Agricultural Extension Division. However, teachers in the College of Agriculture and members of the Experiment Station and State Plant Board staffs help in formulating the program and carrying on the instruction. Officials of the State Department of Agriculture, including the State Bureau of Markets, the United States Department of Agriculture, and other agricultural institutions take part in the programs. In addition, a number of farmers and growers themselves who have made successes in their work, explain how they accomplish best results.

The men's program this year will be divided into the following sections: Farm crops; livestock; citrus and sub-tropical fruits; pecans, small fruits and ornamentals; truck crops; beekeeping; poultry. In addition,

there will be discussions on marketing and farm management. The women's program will be divided into sections on millinery and clothing, home improvement, and foods and nutrition. There will be something to interest the whole family.

While the citrus program is not complete, it is known as this is written that following things will appear on the program. Monday afternoon, August 13, will be devoted to a study of citrus insects in the laboratories of the Experiment Station. Members of the station staff and others will be on hand to help with the study.

Tuesday morning will be devoted to lectures on citrus diseases. H. E. Stevens, of the U. S. Department of Agriculture, will speak on melanose and scab control. Dr. A. S. Rhoads of the Experiment Station will talk on gummosis, foot-rot and blight. Dr. H. R. Fulton of the U. S. Department will tell of diseases of citrus fruits in transit.

Insects will occupy the center of the stage in the citrus program from Tuesday afternoon. Among the talks are: The natural control of scale and whitefly, by Dr. E. W. Berger, entomologist of the State Plant Board, who has been instrumental in working out methods of growing friendly fungi for the citrus grove; oil sprays and spraying for scale and whitefly, by W. W. Yothers of the U. S. Department of Agriculture; rust mite

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Decay In Citrus Fruits In Transit

By H. R. Fulton, Pathologist, U. S. Bureau of Plant Industry

The grower of citrus fruits in Florida puts thought, time, effort and money in the growing of a product that will meet market requirements, and bring profitable returns. He is vitally concerned in having this product of his labors properly packed for shipment, and delivered in good condition to the buyer in the terminal market. Oranges and grapefruit, like other fresh fruits and vegetables, remain alive for a period after harvesting, and are subject during this time to disease, injury and death. In 1926 the railroads of the country paid \$8,200,000 in claims for loss on fresh fruits and vegetables, which constituted 21.7% of all claims paid, whereas these commodities made up only 1.27% of the total freight tonnage originating in the United States. The average paid per car was \$9.71 for perishables, as compared with \$.50 on all other commodities. These figures do not take into account additional losses in transit on which claims were not made or in the homes of consumers. Destination inspections by a commercial agency of 137,422 carlots of fruits and vegetables for the first half of 1927 showed that 42 per cent of these cars were found damaged. This is higher than the average for all shipments because many of these inspections were made on cars reported by consignees as in bad order. Damage due to field diseases and decay made up 45% of the whole, that due to shifting of load 26%, that due to improper loading or bracing 6.6%, with other causes following in less degrees.

While oranges and grapefruit are not as highly perishable as many other fruits, statistics prepared by the Committee on Freight Claim Prevention of the American Railway Association for the year 1926 show that orange shipments contributed 10.1% of the loss and damage reported to this association, but comprised only 6.7% of the shipments, and grapefruit showed 3.1% of the loss and damage, with only 1.5% of the shipments, both being considerably more than their proportionate share of damage. Table I gives a detailed showing for the whole country for 1927, indicating the relative importance of various causes of loss in

shipments of oranges, lemons, and grapefruit, as well as in all fruits and vegetables taken collectively. These figures suggest improvement can be made in loading to prevent shifting during transit, as well as in prevention of decay.

of the fruit is from such sources, the usual path of entrance being through the button.

Table II indicates for two seasons the decay condition of Florida and California oranges on arrival at Philadelphia, as shown by inspections

TABLE I.
ALL CAR INSPECTIONS OF FRUITS AND VEGETABLES MADE BY A
COMMERCIAL INSPECTION AGENCY, AT ORIGIN OR DESTINATION, DURING 1927. ONLY ONE EXCEPTION, THE
MOST SERIOUS, COUNTED FOR EACH CAR.

	% Pilferage	% Food Containers	% Improper or Insufficient Bracing	% Defective Equipment	% Load Shifted	% Field Diseases, Decay, Ripeness, etc.	% Transit Frost Damage	% Old Frost Damage	% No Exceptions Noted	% All Other Causes	Total Cars Inspected
All fruits and vegetables	0.6	1.4	2.2	0.5	18.9	18.6	1.6	2.8	54.6	3.8	295,452
Oranges	1.7	2.0	6.3	1.3	23.3	9.9	1.0	1.2	47.6	5.7	20,237
Lemons	1.5	1.3	3.5	0.7	22.5	26.9	0.6	0.1	37.2	5.2	4,335
Grapefruit	1.7	2.9	7.5	0.4	24.3	9.3	1.1	0.7	44.0	8.1	7,027

Florida citrus fruits are subject mainly to two types of rot in transit. One is blue mold rot of which there are two varieties, namely that caused by the more common olive-green mold fungus (*Penicillium digitatum*), and that caused by the less usual blue-green mold (*Penicillium italicum*). Both of these attack the fruit

made of practically all arrivals. With the short transit period from Florida, the showing is better than might be expected for Florida fruit on more distant markets.

Table III is based on requested inspections made by the U. S. Department of Agriculture in all parts of the country on Florida grapefruit and

TABLE II.

	Season 1925-26		Season 1927-28	
	Fla.	Calif.	Fla.	Calif.
Total number of cars inspected.	1333	181	677	119
Number of cars free from rot.	193	22	312	41
Percentage of cars free from rot.	14.5%	12.1%	46.1%	34.5%
Number of cars with 3% rot or less.	1148	144	670	114
Percentage of cars with 3% rot or less.	83.6%	79.6%	99.0%	95.9%
Average percentage of rot all cars.	1.97%	2.87%	.98%	1.45%
Average number days in transit.			7	18
Minimum number days in transit.			5	12

by way of breaks in the protective peel of the fruit. The second type of decay is stem end rot, of which there are also two varieties, one caused by the same fungus (*Diaporthe* (*Phomopsis*) *citri*) which causes melanose, and the other by (*Diplodia natalensis*). Both of the stem end rot fungi flourish and form spores in dead limbs, twigs, or sprigs and infection

oranges, and includes a large proportion of cars that are worse than the average. It is to be noted that stem end rot occurred in about one third of all cars showing rot, and that the average severity in these cars was about the same as for blue mold rot.

Table IV shows general decay condition on the Chicago auction market, as reported by a commercial inspection

TABLE III.

U. S. INSPECTION REPORT ON FLORIDA CITRUS, 1926-27

	Grapefruit	Oranges
(a) Total number of cars inspected.	574	349
(b) Number of cars free from rot.	212	100
(c) Percentage of cars free from rot.	37.0%	28.6%
(d) Number of cars showing 3% or less of rot.	384	209
(e) Percentage of cars showing 3% or less of rot.	66.9%	57.2%
(f) Number of cars showing any rot.	262	151
(g) Number of cars showing stem-end rot.	121	52
(h) Percentage of (g) based on (f).	33.0%	34.0%
(i) Average percentage of blue-mold rot in cars showing only this type.	5.0%	8.8%
(j) Average percentage of stem-end rot in cars showing only this type.	6.2%	6.4%
(k) Average percentage of all rots for all cars inspected.	3.6%	4.9%
(l) Average percentage for oranges and grapefruit.		4.0%

tion agency for practically all arrivals during three months of one season. Here the Florida fruit made a much worse showing than at Philadelphia for either the preceding or following season.

TABLE IV.
CONDITION OF FRUIT ON ARRIVAL CHICAGO AUCTION.
NUMBER OF CARS PER 100 SHOWING VARIOUS AMOUNTS OF DECAY.

AMOUNT OF ROT	December 1926		January 1927		February 1927		December 1926		CUMULATIVE January 1927		February 1927	
	Fla.	Cal.	Fla.	Cal.	Fla.	Cal.	Fla.	Cal.	Fla.	Cal.	Fla.	Cal.
None	1.9	26.9	6.5	42.0	2.8	59.4	1.9	26.9	6.5	42.0	2.8	59.4
1/2 to 1%	1.9	11.3	31.2	11.6	16.9	10.8	3.8	38.2	37.7	53.6	19.7	70.2
1 1/2 to 2%	35.0	14.1	45.1	15.1	47.2	11.2	88.8	52.3	82.8	68.7	66.9	81.4
3 to 4%	38.9	24.3	15.0	20.5	28.4	12.3	77.7	76.6	97.8	89.2	95.3	93.7
5 to 8%	11.6	16.8	2.2	6.2	3.8	5.5	89.3	93.4	100.0	95.4	99.1	99.2
9 to 16%	8.8	6.3	0.0	3.1	0.9	0.4	98.1	99.7	98.5	100.0	99.5	99.5
17 to 32%	1.9	00.3	0.0	1.5	0.0	0.4	100.0	100.0	100.0	100.0	100.0	100.0
TOTAL CARS	103	320	93	258	106	268	103	320	93	258	106	268

In devising and applying methods for decay control, due consideration must be given to costs and to probable increased financial returns. The effect of decay in various amounts on sale prices is an important consideration in this connection. The data presented in Table V. while fragmentary, are suggestive. To eliminate as much as possible the effects of grade and size on prices, the golden grade and 200 size were taken as standard. No definite adjustment has been made for variations in general price level during the season, or for differences in the quality of golden fruit. It is assumed that the averaging of a number of cars in each decay group will even up these variations. From this fragmentary showing it seems that the discount due mainly to decay may vary from about 5% to about 13% of the sale value of all fruit, including sound as well as decayed. These values are based on the weighted average index prices shown in the table.

more generally found in the bark of the larger dead twigs and limbs that are more thoroughly pruned out. There may be a reduction of from 50% to 75% of Diplodia stem end rot as a result of removal of dead wood. Many comparatively young bearing trees have very little dead wood and fruit from such trees has little tendency to develop stem end rot.

2. Spraying with 3-3-50 Bordeaux mixture with or without 1% oil in the form of emulsion between April 15 and May 5. This is the regular melanose treatment, and accomplishes a double purpose. It is more

control and for melanose control are secured when the spraying follows a reasonably thorough removal of the dead wood. The oil may be omitted from the spray when scale insects are well under control in the grove. Any Bordeaux spraying will most likely require a June application of oil for scale control.

3. Removal of the fruit buttons during the coloring process. The stem end rot infection seems to start fairly early in the season on some part of the button, remains quiescent until the fruit is picked, and then extends downward into the fruit causing rot some days or even weeks afterwards. Removal of the buttons within 4 or 5 days from picking prevents practically 90% of stem end rot of both types (See Table VI).

The high temperatures of the coloring rooms and the delay caused by the treatment furnish conditions that favor stem end rot development. Unfortunately no reliable method of handling the fruit to insure the shedding of all the buttons has been devised, although much experimental work has been done along this line. The more buttons that are shed in coloring, the better keeping quality of the fruit. During the warmer parts of the shipping season and under conditions that require prolonged

TABLE VI.
TEST ON DISBUTTONING ORANGES

PERCENTAGES INDICATE TOTAL DECAY, MOSTLY STEM END ROT

Days Held at 70° F.	Untreated	Gassed Stems Not Removed	Gassed, Stems Removed
12	4%	8%	1%
24	21%	36%	3%
36	45%	62%	7%
42	60%	70%	10%

TABLE V.
PHILADELPHIA AUCTION
FLORIDA ORANGES, GOLDEN, 200 SIZE.

Amount of Rot	December 1924 — February 1925					December 1925 — February 1926				
	Cars	Av.Pr.	Dif.	% Cars	Index Price	Cars	Av.Pr.	Dif.	% Cars	Index Price
0 to 1%	252	\$3.58	\$0.00	40.1	\$1.00	237	\$4.24	\$0.00	33.1	\$1.00
1½ to 2%	141	3.75	.17	22.4	1.05	241	4.01	.23	33.6	.94
3 to 4%	125	3.46	.29	19.9	.97	149	4.04	.03	20.8	.95
5 to 8%	64	3.00	.46	10.2	.84	68	3.66	.38	9.5	.86
9 to 16%	37	2.48	.52	5.9	.69	16	3.20	.46	2.2	.75
17 to 32%	9	2.07	.41	1.4	.58	5	2.09	1.11	0.7	.49
33% and up	—	—	—	—	—	1	1.10	.99	0.1	.26
	628				\$.964	717				\$.946

CHICAGO AUCTION DEC. 1926 — FEB. 1927

FLORIDA Amount of Rot	GOLDEN ORANGES 200 SIZE				CALIFORNIA NAVEL ORANGES 200 SIZE					
	Cars	Av.Pr.	Dif.	Index Price	Cars	Av.Pr.	Dif.	Index Price		
0 to 1%	23	\$5.78	\$0.00	17.3	\$1.00	665	\$5.26	\$0.00	54.7	\$1.00
1 1/2 to 2%	46	3.40	.33	34.6	.91	132	5.00	.26	10.8	.95
3 to 4%	43	3.10	.30	32.3	.83	253	5.04	.04	21.0	.96
5 to 8%	16	3.05	.05	12.0	.82	116	4.87	.17	9.6	.92
9 to 16%	4	1.76	1.29	3.0	.47	40	3.92	.95	3.3	.74
17 to 32%	1	1.45	.31	0.8	.39	8	3.23	.69	0.7	.61
	133			\$.869	1214			\$.967		

For the prevention of stem end rot the following measures have been found to be effective:

1. Pruning out dead wood before

effective against Phomopsis stem end rot than against Diplodia, reducing the former from 50% to 75%. The best results both for stem end rot

gassing, ship in so far as possible fruit from trees that do not have much dead wood or that have been well sprayed with Bordeaux mixture.

4. Chemical treatments in the packing house: Several materials, such as borax, and boric acid are being used commercially to reduce decay in citrus fruits. Some of the processes are patented. While these are used primarily for blue mold control, there may also be a material reduction in stem end rot following their use. At best, they can be expected to reduce decay losses to one-half or one-third of what they would otherwise be during a normal marketing period. They supplement rather than replace other methods of rot control.

5. Precooling and refrigeration: Both of the stem end rots are greatly favored by warm temperatures. Diplodia shows up most rapidly in fruit
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Citrus Diseases Affecting the Production of Better Fruit

By H. E. Stevens, Pathologist, U. S. Citrus Disease Laboratory, Orlando, Fla., at Meeting of State Horticultural Society

The subject assigned to me, as printed in the preliminary program was Citrus Diseases. If I should briefly consider all the Citrus diseases that may occur in the grove, I am afraid it would require more of your time and patience than could reasonably be allotted in this meeting. So in order to lighten my own task and give a short paper I have taken the liberty of enlarging my subject to "Citrus Diseases Affecting the Production of Better Fruit". This will narrow the field materially and still include the two most important diseases, melanose and scab, which are responsible for much of our low grade fruit each season. And this year is not apt to be an exception.

I believe that it is timely to stress the importance of producing a higher grade fruit this year, as the crop is just in the formative stage and there is yet time for action against most of the agencies responsible for lowering the grades of fruit.

The slogan of Better Fruit has been sounded to the grower on many occasions. There is hardly a meeting of Citrus growers held, but what this subject has been approached from some angle. Still the quality of our fruit, especially in appearance, continues to fall far short of what it should be and Florida is encumbered with the reputation of producing an unusually large percentage of low grade fruit each year. This has its effect on the market, on the consumer and usually a depressing effect on the grower, both mentally and financially.

There is nothing wrong with the interior of a mature Florida orange or grapefruit. The inside is delicious and desirable, but it is the outside appearance that attracts the consumer and if this is not attractive, or pleasing, he is not apt to become familiar with the "inside". On the market, in the fruit stores, and fruit stands, the quality of our oranges and grapefruits is determined largely through the eye. By improving the appearance of the fruit it is made more salable and more apt to return a profit to the grower.

There are many excuses given for not producing better fruits, but

there are very few real reasons why the large percent of our low grade fruit can not be eliminated if we consider the production of Citrus fruits on a business-like basis.

The past season's crop was a short one. On the whole, a very large amount of inferior fruit was produced, but it has been marketed at good prices, because of the shortage of the crop. However, the difference in price of first grade fruit has been so marked as to convince the most skeptical that it pays to produce first grade fruits, even during a period of short crops.

How much more necessary it is than to produce the largest amount of first grade fruit when the crop is normal or above normal, and when as an actual fact, the first grade fruit is all that brings returns to the grower.

We are probably facing the largest crop in our history, during the coming season. The bloom has been unusually heavy throughout the Citrus belt. While the bloom itself is no measure of the crop to be shipped, it may be taken as an indicator of what we might expect if conditions are favorable for the production of the crop. A large crop this season will necessarily mean lower prices. This is apt to mean that only the first grade fruit will return a profit to the grower and the time to begin to produce this first grade fruit is now at hand.

Insects and diseases are probably responsible for 95% of the off-grade fruit produced in the State. By this, I mean surface injuries or blemishes that would place the fruit in the lower grades. I believe it is easily possible to reduce this injury 50 to 60 percent by proper control at a cost that will not add greatly to the production cost of the fruit. This will require a certain amount of pruning, a certain amount of spraying, a certain amount of dusting, and some knowledge of the disease or insect necessary to control. This information is readily available to any Citrus grower interested in the control of such pests, in the Bulletins of the United States Department of Agriculture, your State Experiment Sta-

tion Bulletins, or you may receive personal help in such matters from your county agent.

By keeping certain diseases and insects under reasonable control, the percentage of first grade can be increased in the grove to a point where it will pay for production and return a fair profit beside. The greater the amount of first grade fruit, the larger the amount of profits, is a thought that should be kept in mind.

The rust mite is easy to control and it should not be a costly operation. It is simply a matter of being on time and getting ahead of the mites. There is plenty available information on how to identify and control this pest, and no grower need to be without this information if he is interested in controlling rust mites.

The control of melanose and citrus scab is a little more difficult and the time of application of the spray material will usually determine the success or failure of the control measures employed. Melanose is second to the rust mite in point of surface injury to the fruits. It occurs on the orange and grapefruits alike, but is confined more to the older bearing groves where dead wood is more abundant in the trees. I will not go into details concerning the cause, nature, or habits of the fungus causing melanose, or consider the characteristic of the disease, as this can be gotten more fully in the publications on melanose. U. S. D. A. Department Circular 259, Commercial Control of Citrus Melanose, will give you rather full details on melanose and its control. There are a few points on melanose, however, that I wish to take note of which should be borne in mind in the control of this disease.

The cause of melanose is located in the dead bark of citrus twigs and branches, and any dead wood in the Citrus tree may become a source of infection. Agencies that cause dead wood in the trees aid in the development and spread of melanose. The cold and drought during the past few months has been responsible for large accumulations of dead twigs in the citrus tree and this dead wood is apt to become active sources of mela-

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nose spores during the next few weeks. When the dead wood is kept down or pruned from the trees, the chances for fungus development is greatly restricted. Such pruning should be completed before the first of May in advance of the summer rains, for it is during this period that the greatest melanose injury is apt to occur.

Spraying with 3-3-50 Bordeaux Mixture plus oil or oil emulsion, has given satisfactory control of melanose under ordinary conditions. The heaviest development of melanose occurs probably during May when the seasonal rains begin. Slight infection may occur on the fruit following showers in April, but hardly sufficient to cause serious injury unless April happens to be a very rainy month. To give the greatest amount of protection, the spray should be delayed until just before the May rains set in. As we are apt to have a period of showers during the first part of May, our advice has been to complete the melanose spraying by the first of May. The application should probably not go on before the 15th of April, if only one application is made, as the fruit is rapidly increasing in size and a large percent of the surface would not be covered by Bordeaux. This unprotected surface would be exposed to injury during the period of greatest spore development. Young bearing trees will usually need no Bordeaux spray for melanose control. Where the Bordeaux oil emulsion has been applied, an oil emulsion spray should follow in June to take care of any scale development. In spraying for melanose, the aim should be to cover the outer surface of the tree rather than the interior. Keep away from the trunks and large limbs, but cover the fruit and outer leaves. A thin even covering is more desirable than a drenching spray. In some cases, the combination of Bordeaux oil has caused injury by spotting or shading the fruits. While the actual amount of damage may be small in most cases, it is frequently undesirable where high grade fruit is wished. The explanation or cause of this injury can not always be readily explained as the conditions under which it occurs are variable. There is little or no tendency for such injury where the straight Bordeaux mixture is used alone, if it is properly made and applied. However it is not safe to apply Bordeaux alone in the grove unless the trees are exceptionally free from scale. It should then be followed in a month or six weeks with an oil

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emulsion spray to take care of the scale that are certain to follow. If scale are plentiful or rather numerous, at the time the Bordeaux spray should be applied for melanose, the 1% oil or oil emulsion should be included in the Bordeaux mixture.

It is a little late at this time to consider scab control for this season's crop. From the observations I have been able to make, scab infection is light this season on fruits from the early bloom. The dry weather has been unfavorable for scab development up to the present time and if the weather continues dry until the first of May, we will have passed the critical period of scab infection.

Citrus scab is variable in its occurrence in different localities and

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even in the same locality. For this reason, it was found necessary to devise three different spray schedules for this disease. In groves where scab is periodically severe, three or four applications of Bordeaux mixture plus one percent oil are necessary to control the disease, beginning with a dormant application just before the new growth appears.

In grove where the disease is moderate to severe, a dormant application of Bordeaux oil is given, followed by lime sulphur solution. In groves where scab is occasionally present and of minor importance, the lime sulphur solution is used as a dormant and subsequent spray. Full details concerning scab and its control can be found in U. S. D. A. Bulletin Number 1118.

Exceptionally Fine Lichtee Fruit

Lichtee Fruit

The editorial force of The Citrus Industry recently had the pleasure of sampling some of the famed Lichtee Fruit of Chinese origin, through the courtesy of Mr. N. A. Reasoner of the Royal Palm Nurseries at One-co, Florida.

This fruit, small but exceptionally fine flavored and delicately colored, is now being grown in considerable quantities by the Royal Palm Nurseries. In China this fruit is dried and is served in Chinese restaurants after meals, much as nuts are served after meals in this country. Mr. Reasoner, however, is promoting the idea of using this fruit in its fresh state, and we can testify that it is highly gratifying to the palate in that state.

The Royal Palm Nursery has probably done more experimenting with this fruit than any other American nursery, and now has what is probably the largest and oldest collection of Lichtee plants in the Western Hemisphere, including the first tree to bear fruit.

Mr. Reasoner is firmly convinced that this fruit offers commercial possibilities in the more protected sections of Florida, particularly on low, damp, acid soil, such as is found around Fort Myers, and he states that he finds considerable interest developing around this fruit at the present time.

Mr. Reasoner recently shipped 300 plants to California where a commercial planting is being made. Mr. Reasoner expresses doubt, however, as to the adaptability of the fruit to

California conditions, owing to the climate there. He is inclined to believe that it is better adapted to the Florida climate, inasmuch as it is intermediate between the mango and the orange in hardness. The plant grows very easily, though not as rapidly as the mango, and so far seems to be immune from all the common insect and scale diseases.

Florida horticulturists and experimentalists will watch the development of this fruit with much interest.

Hume and Williams Head Fertilizer Firm

H. Harold Hume of this city and Glen St. Mary was named chairman of the board of directors, and Simon F. Williams president at the annual meeting of the E. O. Painter Fertilizer Company. The session was held in the company's office, Dyal-Upchurch building, Jacksonville.

The other officers chosen are. W. P. Simmons, vice president, and D. A. Morrison, secretary and treasurer.

Mr. Hume, who formerly was president of the company, is one of the most prominent authorities on citrus culture in the United States. He is also an author of note, his latest work being *The Cultivation of Citrus Fruits*.

Spuds Johnson says that growing hogs need growing pastures.

Some Observations On Grove Heating

By A. F. Camp

Much of the information given in a similar paper last year was based upon a general survey of the state following the cold weather and dealt mostly with natural protection against cold. This year I want to bring to your attention some matters connected with grove heating. Data for this paper was obtained from growers who were heating and by actually staying with certain groves while they were heated.

The cold wave that landed in Florida on the morning of January 2nd was worth some study. On the morning of January 2nd the thermometer continued to drop steadily until late in the morning at Gainesville and was accompanied by a light cold wind from the N. W. The writer had occasion to leave for Hastings early that morning and arrived there about 8:00 A. M. at which time the thermometer was still dropping although the sun was shining. A minimum of about 26° was reached about 8:30 or 9:00 in the morning. The thermographic records at Gainesville showed about the same condition with the minimum of 24°F. around 8:30 A. M. A steady, strong wind blew from the north all day and the maximum temperature was only 41°F. with a very sharp peak. By 5:00 o'clock P. M. the temperature had dropped below 32°F. and was dropping very rapidly. The temperature at Citra dropped below 25° before 8:00 P. M. and remained below 25° until about 9:00 the next day. The minimum at Gainesville was about 15° and at Citra, about 18°F. On Tuesday it remained very cold going above freezing for only a few hours, and that night it dropped to 21°F. at Citra and 18° (according to our thermographic records) at Gainesville and remained below 25° for almost as long a time as on the night before.

On Monday night there was only a slight freeze and the recording anemometer at Jacksonville showed a mean wind velocity of 12 miles per hour throughout the night. On Tuesday night it was more quiet and heating was correspondingly more efficient. The period below freezing was very long in both instances and this made heating very difficult.

The cold wind on Monday probably added materially to the damage

done by the low temperature that night. Throughout the area north of Leesburg, trees were severely injured on hill tops and exposed north slopes, while last year with a still cold the natural air drainage on such locations protected the groves. Southerly slopes suffered much less in proportion being protected from the wind and at the same time having adequate air drainage. The trees in this area were about as dormant as citrus trees ever get in Florida but were also weakened by the extensive drouth that had preceded the cold spell so that one condition tended to offset the other.

The grove in which the heating was watched was part of an old hammock grove near Citra on the south side of a lake and surrounded with heavy woods. A considerable portion of the area heated was old natural grove with large trees, very close together and forming a canopy of growth, the remainder of the area was almost as well overgrown though the trees were in rows. The area was surrounded by woods and had many large oaks in it and under these conditions the wind was well broken up and it was very quiet in the grove itself. It is doubtful if there was very much inversion of temperature to help hold the heat near the ground.

Coke heaters were used, with some large wood fires around the northerly edges of the fired area. Firing was started around 7:00 P. M. and when the writer arrived at 8:30 P. M. about half of the pots had been lighted and the temperature was being maintained above 32° in many parts of the grove. By 10:00 P. M. the temperature had dropped to 21° outside the fired area and to about 30° in most parts of the area; a differential of 9°F. The temperature subsequently dropped to 18° outside the fired area and the temperature within the fired area went down steadily toward morning reaching as low as 22° for a short time at some points. This was due to the fact that too many heaters had been lighted up during the first part of the night and it was found impossible to keep them from going out when more coke was added while they were burning. The south side of the area did not drop below 27° until about 2.00 A. M.

but finally reached 22° for a few minutes just before morning when many of the pots had gone out. The thermograph on the north side of the grove was in an area where there was a larger supply of pots and the temperature held at about 27° until three o'clock and then held at 26° until morning.

The results of this situation were very interesting. No fruit showed ice in it until the temperature dropped to 26°, several hours at 27° failing to produce any ice at all. By morning the temperature throughout the grove had finally dropped below 27° and there was some ice showing in practically all the fruit except those on trees close to large wood fires. It was only a little slush ice however and the fruit held on the tree subsequently for some weeks and shipped in good shape without drying out or decaying. Fruit outside the fired area was frozen hard.

On the second night the firing was better organized. Only about one-third (about 30 per acre) of the heaters were fired during the early part of the night and at ten o'clock the second third was fired and as soon as those that had been lighted first burned out they were completely refilled. About three o'clock the final third was started together with those heaters that had been refilled.

At midnight the temperature outside the fired area was between 23° and 24° and the temperature within the fired area averaged 28½°. Subsequently the outside temperature dropped steadily reaching 21½° at 5:30 but the temperature within the fired area never reached 26° in any part of the grove though 26½° was recorded at several points for short periods. No ice was found in the oranges within the fired area. Fruit outside the fired area was again frozen hard.

A large crop of fruit was saved in good shape for shipment and the trees received no injury at all, retaining all their leaves and giving a very heavy bloom this spring. Had the heating been a little better organized on the first night the temperature could probably have been maintained above 26° by hard work and lots of it but the chief difficulty lay in lack of experience in handling

such matters and this will only be corrected with time. On the second night the firing worked out much better though had it been a little colder there would probably not have been enough heaters and fuel to meet the situation. Under such conditions it is not only useless but a waste of fuel to hold the temperature above 28° to 29°F.

During a frost later in the year observations were made in the firing of another grove, though the temperature was such that firing was hardly justified. In this grove there was a large block of year old trees and the firing of this area confirmed certain of our previous experiences. At one time about 35 coke heaters per acre were burning in this block with a raise in temperature of only 1 to 1½ degrees. There was practically no wind movement but sufficient air drainage to make heating difficult. It has become apparent from this sort of experience that the firing of a very young grove where the trees do not impede the movement of the air is a much more difficult matter than the firing of an old grove with trees growing closely together and tending to hold the air. In those young groves where the air drainage is good it has been noted both last year and this year that heating has been far from satisfactory, in contrast to the success obtained in old groves.

From the experience obtained during the past winter in the firing of groves in Florida it is well to voice a few warnings and bring out a few points which are of greatest importance to those who intend to heat their groves. Heating is a comparatively undeveloped field here and information that is commonplace among the citrus growers in certain sections of California does not exist generally among the growers here.

The first point that should be raised is in regard to thermometers. In many quarters we found men who had invested hundreds and even thousands of dollars in heaters and fuel and then tried to handle the firing with 25 cent thermometers of the type commonly given away for advertising. Some did not know where to get good thermometers and others felt that the price was too high.

It is a very poor proposition, however, to spend up to as much as 15,000 dollars on heating apparatus and fuel and not be willing to spend a hundred dollars on thermometers to tell you when to use this equipment. The thermometers should tell you when to start the fires, how many to

start, and how to handle them. The burning of heaters unnecessarily for a few hours will use enough fuel to pay for a whole lot of good thermometers and the failure to start heating in time may likewise cost you more than a great many more thermometers. In trying to save a crop of fruit it is manifestly unnecessary to start firing before the fruit is in danger, that is, before the temperature falls below about 28°F. to 30°F. Fuel spent in keeping the temperature up to 36 degrees or more during such a period is money thrown away. Good thermometers can be obtained from any laboratory supply house or from a number of manufacturers and should be checked by the Weather Bureau for low temperatures. If some checked thermometers are available the remaining ones can be roughly checked against these. A very convenient way to check thermometers in a hurry is to make up a jar of water and ground up ice and stir it very thoroughly with a thermometer, making several readings while stirring, under such conditions the thermometer should register exactly 32°F. or 0°F. A thermometer can be checked further against one that has been tested by the Weather Bureau by fastening it to the checked thermometer with rubber bands and stirring a mixture of ice water and salt. By varying the amount of salt various temperatures below 32°F. can be obtained and the readings on the thermometers compared. Testing of thermometers at home is not recommended but it can be done as outlined above in an emergency. A thermometer may be correct at one point and incorrect at another as its accuracy throughout its range depends on the uniformity of the bore of the capillary tube in which the mercury moves. It will usually be found that a fairly good thermometer will be correct at 32°F. and 212°F. because these are convenient points for making the original calibration, but it may be out several degrees at other points and particularly below 32° unless it is of very high quality. You do not expect all automobiles to be of equally good construction and to run equally well so why expect thermometers to be equally accurate.

Another point for consideration is the mounting of the thermometer. The thermometer should be under some sort of a covering to prevent radiation losses to the sky which may be particularly large on still nights resulting in the thermometer registering several degrees below the

actual air temperature. A very cheap and convenient mounting is the one I have here made out of a piece of 1x3 about 5½ feet long and a couple of pieces of board about 8 or 9" wide. The thermometer can be conveniently attached to vertical board and the sharpened end of the stake stuck in the ground. In passing it might be said that the man with a large grove to fire will find two or three recording thermometers which can be purchased for about 50 dollars each of great value for they will tell him at a glance what the temperature is and also what the general tendency is so that he can adjust his heaters accordingly. When the cold is over he will have a complete record of what happened.

Place your thermometers in the grove with special reference to conditions. Locate the colder spots and have a thermometer in each and some additional ones located in the warmer areas. Decide beforehand what temperature you wish to maintain and then watch your thermometers and act accordingly. As the temperature nears the danger point light these heaters in the coldest portions of the grove and gradually light more as necessary. Do not try to see how hot you can get the grove, just hold the temperature above the danger point and adjust your heaters according to the temperature readings. Good thermometers, properly used, are as important to the grove man in the throes of a cold spell as good maps and good instruments are to an aviator.

Have plenty of heaters and plenty of fuel before winter sets in. That ought to be a simple thing to understand and yet many growers in this state found themselves during the January cold with plenty of heaters but insufficient fuel. The consequence was that some saved their fruit the first night and lost it the second, so that they stood a loss, not only on the fruit, but also, for all the money they spent the first night. If they were going to let the fruit freeze anyway they might as well have had a good sleep and saved a lot of fuel on the first night. The first principle is to have plenty of heaters in the first place and then have enough fuel at the grove and properly placed to care for at least 4 nights. If it will be difficult to get more fuel within a weeks time it may be necessary to have more than 4 nights supply available. The burden of all this is precisely this; if a man is going to heat his grove he must do it right be-

Continued on page 33

Tenny Resigns as Economics Chief to Join California Cooperative

Lloyd S. Tenny, chief of the Bureau of Agricultural Economics of the United States Department of Agriculture, has submitted and Secretary of Agriculture Jardine has accepted his resignation, effective July 16. Mr. Tenny announces that he will accept an executive position with the Associated California Fruit Industries, Inc., a growers organization. Secretary Jardine expressed his regret that the department should lose Mr. Tenny's services. No announcement was made as to his successor.

The Associated California Fruit Industries, Inc. is an overhead organization controlled by growers designed to bring about coordinated action between grower and shipping interests in the distribution of both grapes and deciduous fruits. The central unit in the organization is a clearing house which last year operated solely with fresh grapes under the California Vineyardists Association. The new extension of activities caused the change in name.

In accepting Mr. Tenny's resignation, Secretary Jardine wrote: "I feel that it would be unfair to you and to the opportunity you have in California to request that you continue in your present position. You have a full knowledge of the problems facing the fruit growers in California. You are acquainted with, and have the confidence of the growers, shippers, bankers and others vitally concerned which ought to attract you, and I know that you will make a material contribution in placing these industries upon a more satisfactory basis.

"The Department of Agriculture is in full sympathy with the efforts now being made to bring some measure of relief to the growers of California, and in your new work you and your associates will receive the full and effective support of this department."

Mr. Tenny, who was born at Hilton, N. Y., was graduated from the University of Rochester in 1902 with the A. B. degree. He immediately joined the United States Department of Agriculture, working in the Bureau of Plant Industry, and contin-

ued graduate and post-graduate work at George Washington University and Cornell University. From 1910 to 1913 he engaged in farming in New York and in work carried on cooperatively by the State and the United States Department of Agriculture.

From 1914 to 1918 Mr. Tenny was Secretary and Manager of the Florida Fruit Growers and Shippers League, also serving as Chairman of the Executive Committee of the Florida State Plant Board, and as Secretary of the Florida East Coast Growers' Association.

Rejoining the Department of Agriculture in 1921, Mr. Tenny entered the Bureau of Markets as Assistant to the Chief, specializing on research work in the handling and marketing of agricultural products. In 1922 he was appointed Assistant Chief of the bureau in charge of all service and regulatory work. In December, 1926, he was appointed Chief of the Bureau of Agricultural Economics.

Referring to Mr. Tenny's service as chief of the bureau, Secretary Jardine said: "Under your guidance the work of the Bureau of Agricultural Economics has been further expanded to more closely conform to the economic problems and needs of the farmers. The various services and functions of the bureau fill a vital need in American agriculture and it will be my policy to see that this work, which you have so ably administered, will continue to develop along constructive lines."

"My service in the Department of Agriculture," said Mr. Tenny in his letter of resignation, "has been a happy and profitable experience to me and especially do I appreciate the opportunities of the past seven years in connection with the new and more progressive lines of work undertaken in the Bureau of Agricultural Economics. After very careful consideration of the question, however, I have come to the conclusion that I have made my contribution to public service, and can not decline the proposition that has been offered to me by the California people through Mr.

Donald D. Conn, Managing Director of the Associated California Fruit Industries, Inc.,

"The work in which I will be engaged in California will be, to a great extent, the carrying out of certain ideas that have been developed in the department, and, with these industries consolidated, it will be a most interesting and profitable experiment."

State Citrus Value Placed at 51 Million

Florida's last citrus crop in 1927-28 was worth \$51,352,930, not including canned citrus, that moved by truck or consumed within the state, according to an unofficial estimate announced by H. M. Rhodes, state commissioner of marketing.

Mr. Rhodes figured 17,963 cars or 6,466,680 boxes of oranges were shipped by rail or water during the season; 17,555 cars or 6,319,860 boxes of grapefruit; and 1116 cars or 401,760 boxes of tangerines. In addition he estimated 1199 cars of oranges and grapefruit or, figuring 360 boxes to the car 431,640 boxes were shipped by express.

He arrived at his figures on the basis of the average market returns as outlined in the annual report of the Florida Citrus Exchange. On that basis the average orange value was placed at \$4.16 a box; tangerines, \$5.28 a box, and grapefruit, \$3.28 a box. The value of the 6,466,680 boxes of oranges, under the computation, was placed at \$26,902,388.80; that of the 6,319,860 boxes of grapefruit at \$20,729,044, and the 401,760 boxes of tangerines at \$2,121,292.80. The value of the express shipments was placed at \$1,601,304.40, using the general average of the exchange's orange and grapefruit returns of \$3.71 a box.

A girl is just as strong as her weakest moment.—Wash. and Lee Mink.

The products of agriculture constitute nearly half of the value of the exports of the United States.

Irrigation of Citrus Trees

By E. F. DeBusk, at Meeting State Horticultural Society

Citrus grove irrigation in Florida is rapidly becoming one of the standard operation in citrus fruit culture. More progress has been made along this line during the last twelve months than during any five year period of the last twenty years. The reason for such unusual activity and interest is obvious.

While the citrus belt of Florida has an annual rainfall of around fifty inches, which is in excess of the total annual needs of citrus trees, a large percentage of the groves suffer from lack of moisture at some time or other during the spring or fall of five years out of seven because of inadequate distribution of this total annual rainfall. A study of the rainfall records of the Weather Bureau of the past 35 years brings out the facts that during that period the number of years in which the rainfall of each of the driest months was insufficient to supply what is generally accepted as the needs of the trees, were as follows:

Januaries,	10
Februarys,	16
Marches,	24
Aprils,	25
Mays,	15
Septembers,	2
Octobers,	10
Novembers,	23
Decembers,	10

The tangible results of this deficiency of moisture are dropping of bloom and young fruit and dropping of fruit in the fall and winter. But the real effects go further than that. We are beginning to take into consideration the effect upon size and quality of the fruit, upon the economic uses of fertilizers, upon the cover crop and consequent effect upon the organic content of the soil, the permanent effect upon the tree as manifested in dead branches and susceptibility to disease and insect attacks. Correcting this deficiency of moisture is therefore a problem of very great economic importance with many citrus fruit growers of the State.

Any method of applying water to an agricultural soil by artificial means may be termed irrigation. As a guide to proper grove irrigation, a few fundamentals should be kept in mind. In the first place soil is the reservoir that hold the water for the tree. The water-holding capacity of a soil is its field capacity, in direct proportion

to the fineness of the soil particles and to its organic content. In order to apply irrigation water affectively and economically, the water-holding capacity of the soil and the percentage of moisture present at the time of irrigation, or when irrigation is contemplated, should be known. (A practicable method of making soil moisture determinations in the grove may be obtained from the Experiment Station, Gainesville). The depth of the tree root system and the depth of greatest root concentration should be determined. This may be done by digging a ditch or few holes in the grove and observing the distribution of the root system. The coarser the soil particles the more rapidly the soil absorbs water, and in turn the more quickly it gives up its total moisture to the tree. These facts should help to guide the grower in the frequency of application of irrigation water and in the proper quantity to apply.

Irrigation water in the grove is usually applied to the surface or near the surface and is pulled downward thru the soil by gravity. If the moisture-holding capacity is such that a foot of soil will absorb an acre-inch of water the first foot gets the first acre-inch applied, and in order to wet the soil below that depth more water must be applied. The second acre inch will wet the second foot or more, the third acre-inch the third depth, and so on down, each additional amount of water passing thru the wetted soil, the moisture-holding capacity of which is thoroly satisfied. If more water is applied than is needed to satisfy the water-holding capacity of the soil to the depth of the root system it passed on downward and is lost to the tree, for the time being at least. The soil, or reservoir, gives up its water to the roots of the trees and cover crop. The relative rate at which the water at different depths is given up is in direct proportion to the root concentration. After a soil has been wetted to the entire depth of the root system, one or more additional applications of water will be needed to rewet the first 14 to 18 inches, or the area of highest root concentration, before additional water will be needed in the lower root area.

In irrigation practice, we might consider that when a soil is wetted it holds its water until it is extract-

ed by the roots of plants. If we depend upon capillary movement to distribute water from wet to dry soil, in any direction, disappointment will result. This suggests the importance of uniform distribution of the irrigation water over the entire surface of the grove. Anything short of this in a bearing grove cannot be considered as highly efficient irrigation. If the soil in any part of the grove is not wetted the roots in that area may die from lack of moisture while surrounding areas are wet. We cannot depend upon a horizontal spread of water from irrigation furrows or ditches. From a practical standpoint, the only forces or agencies that operate in the distribution of water in the soil are gravity, adhesion of water to soil particles, and surface tension of the water film.

When to apply irrigation water to our Florida groves for best results is a question that will require time and investigation to answer. However, our present knowledge of irrigation in general warrants making a few fundamental recommendations. In proper irrigation, a knowledge of the water-holding capacity and wilting point of the soil of the individual grove, the amount of moisture present and distribution of the root system, will be needed. Irrigation water should be applied before the trees wilt and otherwise show signs of distress. Permanent injury may result to a tree left in a wilted condition for only a few hours. The moisture-holding capacity of a large percentage of our citrus acreage runs from 12 to 25 per cent. In most of these soils very little or no root growth will be found under conditions of less than 2% moisture. A higher moisture content is required to keep trees from wilting in the highly organic soils than in the light sandy soils. The wilting point of the soil of the individual grove should be known, and an effort should be made to hold the moisture content safely above that point by replenishing the water by repeated irrigation as the trees take it up. It is extremely difficult to wet uniformly some of our soils after they have been allowed to "run dry." This condition is often found in Florida groves. It is useless to try to build the moisture content of a soil to a point above that of its moisture holding capacity by

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The Citrus Industry

with which is merged The Citrus Leaf

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GROVE CALENDAR FOR JULY

Timely Suggestions for Grove Work During the Present Month

Continue cultivating nursery stock, and young non-bearing trees.

Fertilize nursery stock.

Replant spaces in newly set groves.

Prepare stocks for summer budding.

Spread beneficial fungi to control white-fly.

If trees are affected with foot rot, scrape soil away from affected roots and base of trees, cut away infected bark and paint with bordeaux, lime-sulphur or carbolieum.

Continue spraying pecans with 4-4-50 bordeaux mixture (plus 1 pound of lead arsenate) to control scab and chewing insects.

Start budding and top-working trees.

THE CLEARING HOUSE SITUATION

On July 9, announcement was made by Judge Allen E. Walker, chairman of the Committee of Fifty, that an aggregate of 65 per cent of the total Florida citrus crop had been signed up for membership in the Growers' Clearing House. This is five per cent more than the required six-

ty per cent set as the minimum by the sponsors of the movement.

Following this announcement by Judge Walker, steps were taken for the immediate opening of Clearing House headquarters in Winter Haven, and the announcement was made that the organization would at once begin its functions.

In making the announcement of the signing of 65 per cent of the crop, Judge Walker also announced that hopes were entertained that the big shippers who have not signed up with the Clearing House movement would yet do so and that eventually the Clearing House would have the support of 100 per cent of the crop.

Attorney General Fred Davis recently submitted his opinion that growers-shippers were eligible to membership on the board of directors, and Judge Walker stated that he saw in this decision the opening of the way for an alignment of the big shippers with the Clearing House. It is stated that a movement having this object in view is now under way, but no definite information is available at this time.

Should later developments make possible the complete union between growers and shippers in support of the Clearing House, there is no doubt that such united action would mean much to Florida growers. As The Citrus Industry sees it, a sixty-five per cent control of the distribution of the Florida citrus crop will be just sixty-five per cent efficient; to be 100 per cent effective, 100 per cent control is necessary. The Citrus Industry hopes that common interests and mutual concessions may operate to bring about complete union between growers and shippers to the end that this 100 per cent control may be assured.

MISSISSIPPI SETS GOOD EXAMPLE

Mississippi in days gone by has enjoyed (?) a reputation for backwardness and lack of progress which in all too many cases has not been deserved. Residents of other states who pride themselves upon progressiveness and up-to-the-minute modernism, have been prone to point to Mississippi as being representative of the extreme in lack of enterprise.

Yet it was Mississippi which first set the pace in real tick eradication among the states of the South and which by her example paved the way for effective work of like nature in other states.

Right now Mississippi is showing her enterprise and spirit of progress in another direction which is none the less worthy of emulation by other states.

Mississippi has awakened to the necessity of reforestation, and is among the first states to take effective measures for preserving her present forests and replenishing the barren acres from which the timber has been cut. And Mississippi has hit upon what looks to be a splendid way of getting things that need be learned in this connection into the knowledge of her people. It is nothing more nor less than the way of getting it into the minds of the children.

Reports coming from that state tell that two traveling libraries provided by the Mississippi

forest service are being routed to schools in the Pascagoula fire protection area by the local district forester, according to reports to the forest service of the United States department of agriculture. Another set of books on trees and forests has been prepared by the service for the Coahoma county library at Clarksdale, Miss., which distributes books all over the county by motor truck. The sets contain books on tree botany and elementary forestry and stories of outdoor life. A recent report from one set shows in 21 days 110 readings. If this beginning works out well, the state forest service intends to put other sets of books in circulation. In addition it is offering a list of recommended forestry books to schools and libraries wishing to add such books to their shelves.

Mississippi, exactly as have other states, has been slow coming to a realization of the importance of forest protection and restoration but she has come to it at last and is proceeding in a most sensible and effective way toward the ultimate accomplishment of those ends.

Reforestation and preservation of the forests we have will come into their own when the young folks of this generation have been brought to know what they really mean. Because of this, what Mississippi is doing is valuable to the thoughtful people of other states.

THE CROP OUTLOOK

It is entirely too early to predict with any degree of certainty what the coming citrus crop of Florida will be. There are entirely too many elements of uncertainty to be reckoned with to make any estimate at this time of real value.

All that may be hoped for at this time is to state present conditions and trust to the elements to add to or detract from those conditions as the season advances.

At this writing two facts stand out very clearly: First, the crop now on the trees is much further advanced than at the same time a year ago.

Based upon present amount of fruit on the trees and the advanced stage of development, most tentative estimates, (which after all are nothing more than fairly intelligent guesses) place the probable crop at around eighteen million boxes. This is considerably more than the crop of last year, but is far from the record-breaking crop predicted in some quarters following the heavy early bloom.

If this estimate, (which is nothing more than someone's guess) should prove to be even approximately accurate, the coming crop should bring satisfactory prices. Indeed, that such prices are anticipated is evidenced by the fact that buyers are now reported to be offering prices on the trees which would net the grower a liberal profit on his fruit.

Reports from the apple orchards are that the crop will again be short, and as the price of apples always has a direct bearing upon the price of citrus, this affords another element of strength to the market, at least in the advance calculations.

Shippers and other students of crop condi-

tions and market outlook are generally united in predicting another season of good prices for the Florida grower of citrus fruits.

THE RAINY SEASON IS WITH US

For the first time in three years Florida is experiencing an old time rainy season. For the first time in more than two years, the season rainfall is being recorded by the weather bureau as normal.

Following an extremely dry early spring, the rains of late May and early June ran above normal, and while the first few days of July again fell short of normal, the deficiency was made up by heavy showers during the second week of the month.

For the season as a whole, up to July 15, the rainfall has been adequate and well distributed, and while the many fresh water lakes are still far below their normal level, this is due to the shortage of rainfall during the past two years, which the normal fall of the present season has not yet overcome.

Citrus groves have had ample moisture and are now in excellent condition. However, many growers, remembering the drouth of the past two seasons are either preparing to provide irrigation for their groves, or are seriously considering such steps.

TEXAS GROWERS APPROVE

Commenting upon a recent editorial in The Citrus Industry, The Valley Farmer of Mercedes, Texas, heartily approves the suggestion that the time is not far distant when citrus growers must look to a national movement by citrus interests of all sections to promote a wider and more constant consumption of citrus fruits, regardless of the point of origin.

Giving its approval to the sentiment expressed by The Citrus Industry, The Valley Farmer says:

"Our esteemed contemporary, The Citrus Industry, published at Tampa, Florida, has an editorial in its June issue, corroborating in principle a line of argument which has appealed to us strongly at different moments and on which we have expressed ourselves at times.

"The Valley Farmer believes that the great majority of citrus growers in the lower Rio Grande Valley will appreciate the wisdom of eventual affiliation of all growers of citrus crops, irrespective of state or region, in the United States, for the purpose of "pulling together to increase consumption to a point in keeping with the increased production."

"Now is the time to begin amassing funds for the inevitable national advertising campaign which increased citrus fruit production will surely necessitate in the near future. Let us think over this matter very seriously. Let us take time by the forelock."

Is your grove tractorized or "darkeyized?" It may be possible to make a success of the latter in a small way, but our observation has been that the tractor helps, even on a small grove.

IRRIGATION OF CITRUS TREES

Continued from page 11

excessive applications of water, as the excess water will either run down thru the soil to a point below the root system, carrying soluble plant food with it, or be caught by an impervious strata in the subsoil, raising the water table or perhaps creating a water-logged condition injurious to the lower roots of the trees.

When more than an acre-inch of irrigation water is to be applied to a fairly moist surface soil it should precede, rather than follow, the application of fertilizer. Growers are more or less familiar with the losses of water soluble nitrogen often incurred with heavy rainfall immediately following an application of fertilizer. The same condition may obtain in connections with applications of irrigation water. From the standpoint of conserving nitrogen at least, lower depths of the soil should be wetted in the spring and fall before the applications of fertilizer are made. Results of winter and early spring irrigation of the past two years indicate that winter irrigation may be highly desirable under certain Florida conditions.

Several methods of applying irrigation water to citrus groves are being employed thruout the State with varying degrees of efficiency, economy and success. The prevailing method is known as the flooding method the water is pumped from a lake or well, usually by means of a centrifugal pump, thru a permanent main to the highest part of the grove. The main is provided with outlets thru risers, at convenient intervals, from which the water is conducted thru canvas hose, galvanized slip joint conductor pipes, or in some cases thru ditches and furrows, to all parts of the grove. With but few exceptions, an effort is made to flood the entire surface of the grove. When the ditch or furrow is properly used, the surface is flooded by building dams and making small lateral trenches with a hoe. In a few cases the water is allowed to run in a furrow for several minutes without being diverted or spread over the entire surface, in which case the irrigation is found to be very low in efficiency. In one grove where the writer studied the efficiency of this method, four hours after the water had been allowed to flow thru an irrigation furrow for thirty minutes no appreciable increase of moisture was present six inches from the edge of the furrow and eleven inches below the bottom. A strip less than

THE CITRUS INDUSTRY

twice the width of the furrow had been wetted thru the area of greatest root concentration. As only one furrow to the middle was used we can readily see that this was very poor irrigation. The furrow can be used satisfactorily in distributing water from the main when the slope is not great enough to result in washing and where a large volume of water is discharged and an effort is made to flood the entire area penetrated by the root system of the trees.

Economy in irrigation demands constant adherence to the thought of delivering to the tree the required amount of water at the lowest total cost per gallon or acre inch. The application of this principle begins with the selection of the material and equipment, and the installation of the plant. To move a given amount of water with the minimum horsepower and at the lowest cost per acre-inch, the pump and engine or motor must be matched for the highest efficiency under the given conditions. A 3-inch pump should not be used where a larger one will deliver water at a lower cost per unit because of higher efficiency. Strict attention should be given to matching pulley, pump and engine to the particular conditions. Pipe lines should be laid as straight as practicable, with the minimum number of elbows. Friction, or resistance to the flow of water, should be reduced nearly as practicable and economical to the minimum. In practice, keeping down the friction head has, for the past year, been seriously interfered with by the high cost of iron pipe in the larger sizes. The almost prohibitive price of six, eight and ten inch pipe has been forcing growers to use the smaller sizes in their installations. These small sizes are in most cases inadequate for carrying the required amount of water at a unit cost that will keep the irrigation cost within the range of desired economy. In my judgment, 95% of the 150 plants that I have inspected should have been equipped with larger mains. This mistake no doubt would not have been made if piping of the larger sizes could have been purchased at prices in keeping with the profits from grove irrigation thru the production of citrus fruits. This condition mentioned has directed my attention and efforts toward finding a desirable substitute for iron piping and at a lower cost. An investigation of concrete pipe for irrigation under pressure brought out sufficient merit to warrant laying a demonstration

July, 1928

line. This was done in a grove owned by Prof. J. R. Watson and myself on Lake Harris in Lake County. I have been officially requested to describe this plant and discuss its operation in connection with this paper.

In the installation referred to 8-inch concrete pipe, in 3-foot lengths, of the bell and spigot type was used in the main extending from the pump near the lake, under a clay road and thru the grove to a point at an elevation of 3-feet above the lake. The points were sealed with a pipe sealing compound known as "GK", over which a collar of cement mortar was built. Concrete risers were used, fitted with 4-inch iron tees and nipples for discharging the water into conductor pipes and hose. 1000 feet of 5-inch conductor pipe is used. An 8-foot, open-head, standpipe was built of 10-inch concrete pipe at the upper end of the line for forcing water thru hose to an elevation above the end of the main and as a pressure relief to the line. The line was laid in a ditch 2 feet wide and 2 feet deep, and covered soon after laying. The elastic pip-sealing compound was used to provide for expansion and contraction and possible irregular settling of the line. The cement collar was built over the sealed joints as a reinforcement to the "GK" and as a further prevention of tree root penetration. A one to two and one-half cement mortar of a low slump was used, and was held in place while setting with a cheese cloth diaphragm. Sixty feet of 5-inch iron suction pipe with one elbow of 45 degrees were used in the 4 1/2 foot lift from the lake to the pump. The end of the pipe in the water is equipped with a 1/4-inch screen but no foot valve. A centrifugal pump with 5-inch suction and 4-inch discharge is used. The seven feet of 4-inch line between the pump and concrete line consists of nipples, 90 degree elbow, gate valve, 4 1/2 feet of rubber suction hose from valve to beginning of concrete line, and flange unions. While this flexible connection with the concrete line is not essential it is highly desirable. The pump is primed by means of a pitcher spout pump attached to the top of the pump case by a short line of pipe including a small valve. In priming the centrifugal pump, the large valve in the discharge line is closed and the small valve between the two pumps is opened. The pitcher pump is then operated until the water flows from it. The small valve is then closed, the centrifugal pump started and

when going at full speed the large valve in the discharge line is opened. About five minutes is required to prime the pump by the method described. This method of priming a centrifugal pump is given in detail at this time because of the difficulty often experienced in priming by other methods.

In the installation above described, the 8-inch main makes it possible to operate efficiently the 4-inch pump with a capacity of 450 gallons per minute by a 6 horsepower gasoline engine against a total working head of 39 feet, covering 20 acres at a total cost of \$1.35 per acre inch, including depreciation on equipment and interest on the investment of \$40 per acre. The price of concrete pipe makes such an installation possible and economical.

The uses of concrete pipe in citrus grove irrigation under pressure has been sufficiently tested to warrant recommending it to growers under reasonable conditions. Eight plants using concrete pipe have been installed in the State within the last few weeks. Right here I would hang up a caution sign: lay concrete pipe properly. Further attention will be called to this very important matter in presenting the accompanying lantern slides. This is a job that certainly cannot safely be turned over to unskilled or irresponsible laborers.

In conclusion, I shall summarize by answering the following often-repeated questions coming from growers about concrete pipe for grove irrigation: "What affect does age have on concrete pipe?" "How does friction loss in concrete pipe compare with that of iron pipe?" "Is there danger of citrus tree root penetration and stoppage?" In answer to the first question, I shall quote from Bulletin 852, Bureau of Public Roads, U. S. D. A.; "It is apparent from studies made of concrete pipe laid 38 years ago, that there is no material decrease in the carrying capacity". In regard to friction loss, I shall quote from the same bulletin: the friction loss in a mile of a given size new cast iron pipe was 2.1 feet; in old cast-iron pipe, 5.17 feet. In the best concrete pipe it was 1.91 feet. Quoting from the same bulletin in answer to the last question; "There is no risk of interfering with the capacity of concrete pipe on account of roots entering them if they are properly made and laid. There is no case of record where roots have entered cement pipes unless they were made

Continued on page 24

Attention!

Citrus Growers

HARDIE SPRAYERS



NIAGARA DUSTERS

THE SUREST WAY to increase the revenue from your groves is to improve the QUALITY of your fruit. It is much more profitable to produce a smaller crop of high-priced fruit, than a large crop of low grade fruit.

This is easy, if proper care is taken of the trees and the growing fruit. Those growers who are most successful and prosperous have secured best results from spraying with

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We have prepared and will supply without charge, a spraying schedule which is invaluable for growers. Write for your copy today.

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IMPRESSIONS

By The Impressionist

Standing upon an Orlando street corner with the Hon. S. S. Griffin, well known in politics and as a citrus grower. A surveyor standing upon a far corner waved us out of his line of vision.

"Hey, Sam," we said, "let's get out of his way."

"Those fellows are paid by the month. What the devil is this one in such a hurry for?" said Sam, and moved not at all.

R. B. Woolfolk, George D. Wing and ourself like some kids with a new toy. Playing with the first of the new "dry ice" which we had seen, though it is getting to be no novelty now to many, since they are shipping ice cream refrigerated with it. White as milk and smoking furiously as it melts in the open air, it leaves no sign of moisture behind it. George Wing gets a glass of ice water and drop a bit of the dry ice into it. The water immediately boils furiously from the escaping gas as the ice melts rapidly in this relatively warm environment. Some one assures us its temperature is 114 degrees below freezing. Cold enough. It made that glass of water cold, too, just a little mite of it. We wanted to try drinking that water, but too many fingers had been dipped into it in the testing. Well here's ice that's just like real ice, only more so.

It was a cold and snowy night in New England and the members of the Christian Endeavor Society were returning from a long sleigh ride. A young lady on the front seat with the driver wimpered with the cold.

"What's the matter?" queried the stalwart young Endeavorer who was piloting the horses.

"Oh, Oh, nobody loves me and my hands are so cold."

"Tut, tut, Mabel," said the driver. "You musn't say that. God loves you, and you can sit on your hands."

And now we learn that the author of that historic utterance is none other than one who lives so modestly with us in the world of citrus, Louis A. Hakes, the well known and efficient manager of the Orange Coun-

ty Citrus Sub-Exchange.

Our authority for the foregoing historic statement needs no introduction to the readers of these columns, being Gus Hall, manager of the South Lake Apopka Citrus Growers Assn., and generally reputed to be the highest salaried packing house manager in Tildenville.

A note from J. Curtis Robinson the well known manager of the Growers & Shippers League on stationery of the Mayflower Hotel in Washington where he is pausing on matters before the Interstate Commerce Commission. Let's see, the Republicans have nominated Curtis for vice-president and the Democrats have nominated Robinson. It looks as if our traffic league were coming in for national recognition.

Sitting down at a restaurant table with Prof. A. P. Spencer of the Experiment Station, the boss man of the county agents. The menu card gives choice of soup or appetizer. We favor the appetizer not knowing what it may be, and so does Prof. Spencer. Are we mistaken that there is a hopeful light in his eye? Said appetizer develops to be a dab of sherbert. Life was ever thus.

Again at table, at the Magnolia Hotel in Leesburg with C. C. Commander the ever busy general manager of the Florida Citrus Exchange. In another section of the dining room a local civic club is putting on its weekly program. One chap shortly does some stunts with Indian clubs. About as clever as ever we saw. He finished in a burst of applause. Charlie Commander looks at us shamefacedly, and we respond similarly. Forgetting that the show wasn't put on for our benefit, we had been clapping lustily.

Dropping in at the Grape Growers convention in Orlando we are informed by President E. L. Lord that in fifteen minutes we are to go on the platform for a talk on marketing, pinch-hitting in the absence of one of the advertised stars. He wants

twenty minutes of generalities relating to perishables. We come to bat, and having left our watch at home try to borrow the chairman's. He refuses, and we are left high and dry. Having been long accustomed to talking by the watch and without notes we are floored within five minutes though we try hard not to show it. At the end of ten or twelve minutes as we later figure we are through and taking our seat. Habit is a funny thing. We have grown so accustomed to talking for our dinner we can hang our paw open and conceal our lack of knowledge on most any given subject continuously for any reasonable time specified in advance. But we gotta have a watch to go by. Prof. Lord, please note and remember.

Looks as if our budding grape industry now has rather definite promise. They have come to find which varieties are which from a commercial standpoint, and two seasons from now shipments promise to be imposing. About fifty carloads left the state this season, and young plantings are heavy. The College of Agriculture and the Experiment Station have certainly done their best to aid grape development.

Oh yes. Something must be said on the subject. Maybe it would be wise, however, to dismiss it with the thought that as a candidate for office we are a good plough hand.

Just the same we owe a lot of thanks and appreciation to a lot of people and we are proud to acknowledge the obligation. And even if not nominated we were an humble instrument in upsetting wholly the program of certain powerful interests. We should say the nominee is not unsatisfactory to the growers' interests.

Frank L. Skelly of the American Fruit Growers Inc. lying abed in a cheerful room overlooking the St. Johns River in St. Vincent's hospital at Jacksonville. Weak and in bad shape, but coming back now. Cheer-

Continued on page 23

BLUE GOOSE NEWS

Monthly News of American Fruit Growers Inc.



Edited by The Growers Service Department

VOLUME 2.—No. 8

ORLANDO, FLORIDA JULY, 1928

PAGE 1

SIZES COUNT MUCH IN CITRUS MARKETS

One day during the recent Florida watermelon shipping season carloads of 30s-32s were bringing \$550. At the same time carloads of 26s-28s were selling freely at \$375. There was a large assembly of cash buyers about. The situation was accepted as satisfactory by the melon growers of the shipping locality, many of whom are also citrus growers.

Yet generally there is a failure to appreciate the part that sizes play in the marketing of citrus fruits. Given two adjacent citrus crops of practically equal color and quality going to market simultaneously, and variations in their average sizes may make a substantial difference in the prices which the fruit trade will pay for them. The cash returns for the crop running largely to the then wanted sizes may quite considerably exceed the returns for the other which yields only sizes less desirable to the trade.

In marketing circles it is generally accepted that the high priced sizes are "the sizes you haven't got." It is the fact that such sizes are generally scarce which makes them higher in price.

If shipments are running generally to small sizes, it is the large sizes which bring a premium. Under such circumstances the very small sizes probably will be accepted by the trade only at a discount. There are at such times too many fruit of small sizes for the demand for those sizes. Similarly there are too few of the larger sizes at the time, hence the willingness of the trade to pay a premium for them.

Let shipments be running strongly to the larger sizes of fruit, with a relative or actual scarcity of smaller sizes, and then the markets will pay more for small sizes than for large. The old law of Supply and Demand is functioning. Happy the grower

Continued on page 2

ANNUAL REPORT SHOWS HEALTHY CONDITIONS

The eighth annual report of the American Fruit Growers Inc., for the calendar year ended Dec. 31, 1927, shows total sales during that year of \$42,758,764.47. After deducting charges, the net operating profit for the year amounted to \$668,800. Results of operation of the company for the first three months of the present year showed a net profit, after interest, depreciation and taxes, of \$362,754.32, while April net earnings were considerably more than \$200,000. These figures compare with the net profit during the calendar year of 1927 of \$679,106.04, after deducting interest charges, depreciation and taxes.

These figures show the A. F. G. to be in a much better condition financially and in every other way than ever before. The company's investments in orchards, groves, vegetable farms, packing houses and other operating equipment on Dec. 31, 1927, were \$6,568,848.38, of which over \$4,500,000 was entirely unencumbered. The company's equity in its property is in excess of \$5,800,000. The volume of business in carload lots handled in 1927 was practically the same as that of the preceding year. This was due to a smaller yield in most of the 1927 crop rather than to a lack of new business.

J. S. Crutchfield, one of the best known fruit men in the country, is president of the American Fruit Growers. Directors are: R. B. Woolfolk, chairman, Pittsburgh; William H. Baggs, Pittsburgh; W. B. Clore, Chicago; Walter B. Congdon, Duluth; J. S. Crutchfield, Pittsburgh; John M. Dean, Providence, R. I.; John G. Frazer, Pittsburgh; Edgar S. Hackney, Uniontown; James B. Haines, Jr., Pittsburgh; George R. Hann, Pittsburgh; H. S. Hazeltine, Los Angeles; J. F. McCandless, Pittsburgh; B. T. M. McCready, Pittsburgh; A. B.

Continued on page 3

CONFIDENCE EXPRESSED TOWARD NEXT SEASON

While the record breaking citrus prices of the season just closed cannot promise to be duplicated at any time in the near future, confidence is being expressed freely almost everywhere in citrus circles with respect to the market outlook for the next shipping season.

To the date of this writing California Valencias have been selling at excellent prices. Continuation of the high Valencia market should stimulate their movement. This combined with the lighter crop this season should be expected to get Valencias out of the way by the time Florida oranges are ready to move in any volume.

That apparently argues well for the favorable reception of Florida oranges in the early part of the season, and coupled with the manner in which Florida fruit is sizing up on the trees gives a very favorable outlook at this time.

The manner in which the Florida crop was handled this past season, the best handling in the history of the Florida industry in the opinion of the northern trade, has instilled a confidence in all shipping factors which promises to be of material advantage. It also may be said that the trade as a whole has a greater confidence in the Florida citrus deal than at any time within a great many years.

Such prices as have been mentioned in connection with sales of crops on the trees, in those instances where sales have been reported, are reassuring as measuring the confidence of the buyers in next season's markets.

If growing conditions are good and quality and sizes are up to normal, it would seem that Florida growers are justified in looking forward to next season with full confidence.

Adv.

BLUE GOOSE NEWS

OFFICIAL publication of the American Fruit Growers Inc., Growers Service Department, published the first of each month in the interest of the citrus growers of the state of Florida.

EDITORIAL ROOMS
502 Yowell-Drew Building
ORLANDO, FLORIDA



IN OFF SEASON

Now, in the off season of Florida citrus fruits, the Blue Goose and AFG trademarks are being kept constantly before both trade and public in all sections.

Not only so, but AFG sales representatives are hard at work, maintaining the same trade contacts and exerting the same efforts to hold good will that they put forth at any season.

The theory of carefully combining the sale of different sorts of non-competitive fruits and vegetables from various sections through a single advertising and merchandising channel has been proven amply correct and practical now by over eight years of operations by the American Fruit Growers Inc.

Every posted person now concedes the tremendous advantage of keeping the Blue Goose and AFG trademarks constantly to the fore. Everyone acknowledges the advantages of constant year 'round contact with both trade and consumers. The growing strength of the position of the American Fruit Growers Inc. everywhere is testifying to the correctness of the theory of its organization, and the practical manner in which it is operated.

Full credit, however, cannot be given by any except those thoroughly familiar with perishable shipping practices to the great advantage which has been found to exist in the moral effect exerted by keeping such

Adv.

a big organization intact from one year's end to another. This great army of individuals, spread all over the country, need not be periodically disbanded with need to be periodically reassembled. Continuous operations allow it being kept intact and in constant training.

The resulting effectiveness which comes of continuous teamwork and coordination, is a tremendous factor in the success of the organization.

SIZES COUNT MUCH IN CITRUS MARKETS

Continued from page 1

whose sizes run opposite to those of the general run of other growers of his locality, for the apparent perversity of the markets will probably operate to his advantage.

It is the inability, even the unwillingness, of the retail outlets and of the consuming public to understand growing conditions which at the bottom is responsible for many of the apparent vagaries of the markets with respect to the prices paid for sizes. For growers to attempt to understand this apparent dumbness, it is necessary to trace some of the fruit into consumption and thus to get a hint of the considerations which influence the markets.

Orders to jobbers from retailers or hotels are apt to specify sizes with an exactness bewildering to anyone unfamiliar with this phase of trade practices. It is the effort of the wholesale and jobbing trade to accommodate itself to these demands which sets the market prices for the growers' products.

Behind many of these demands there are reasons which these retail buyers deem adequate for their preferences. In some instances they are sufficiently adequate to satisfy even the reasoning of a disgruntled grower. In other instances such demands may find existence through prejudice or a sort of superstition born of habit. And habits are difficult to change. It is here that the inability or unwillingness of retailers and consumers to understand that growers cannot furnish their preferred sizes simply on order works to the disadvantage of the producers. They are more apt to regard the continued arrival in their market of small sizes at a time when they are crying for big fruit simply as an amazing stupidity on the part of growers and shippers. They have no knowledge of growing conditions, and no desire for such

knowledge. They simply know what they want, and fail to comprehend why there should be any failure to accommodate their preferences.

Supposing a hotel steward decides that he wishes to serve 150 oranges, his orders are more than apt to be placed for 150s day in and day out irrespective of market conditions or the prevailing sizes of the crop which is arriving. Similarly a retail store in a fashionable district will decide its trade requires certain sizes. That store's order will be placed for such sizes practically continuously, the management apparently figuring it is better to accommodate the whims of its patrons than to spend time in the argument required to sell them something else.

Some cities and distributing centers show a normal preference for a preponderance of small sizes at almost all seasons, some prefer larger sizes. The seasoned salesmanager knows concerning these preferences and as far as possible tries to cater to them with his offerings. Fruit which finds its way to consumers through the peddler trade and cheaper outlets generally is wanted in the small sizes, due to the desire of the ultimate purchasers to obtain as many pieces as possible for their money. Exclusive trade generally shows a preference for the larger sizes. In New York City, said to be the world's greatest cocktail consuming center, a vast quantity of oranges are sold through the thousands of delicatessen stores which are everywhere to be found. The unit of sale through these delicatessen stores is generally three oranges, yet the multiplicity of these small sales in the aggregate accounts for the consumption of a tremendous amount of Florida oranges.

The influence of sizes on price is most readily seen in the big auction markets where certain bidders generally seem attracted only to a certain range of sizes (which they deem most suited to their trade) disregarding other offerings in the same sale. To account for these expressed preferences it is necessary to trace such fruit through to the ultimate consumers.

Grapefruit no less than oranges are influenced by the trade's demands for sizes. While the consumers' preferences may be harder to explain, the explanation for the trade's demands always is that the trade believes its customers want the

For the Better Health of a Nation . . Orange Juice

sizes it goes after so insistently.

As growing conditions are more than apt to produce crops with a preponderance of certain sizes, it is not often that a real balance of sizes is struck. When such rare occasions do arise they constitute happy periods for salesmen, and spell prosperity for all the growers.

Continually increasing use of orange juice by the public promises to do much in adjusting the supply of oranges to the size-demands, for when used for juice purposes there is a constantly growing practice of utilizing the cheaper sizes. Grapefruit canning is doing much to bring about some adjustment with respect to grapefruit, but up to this time the canners have not found a way of profitably utilizing all sizes of grapefruit. Thus any balance of grapefruit sizes still must depend largely upon growing conditions.

ANNUAL REPORT SHOWS

HEALTHY CONDITION

Continued from page 1

Michael, Wabasso, Fla.; Alexander Murdoch, Pittsburgh; William New-

some, Boston; W. M. Scott, Sanford, Fla.; F. L. Skelly, Orlando, Fla., and C. L. Snowden, Pittsburgh.

On the Executive Committee are R. B. Woolfolk, chairman; William H. Baggs, Walter B. Congdon, J. S. Crutchfield, John G. Frazer, James B. Haines, Jr., George R. Hann, J. F. McCandless, R. T. M. McCready, William Newsome and C. L. Snowden.—The Produce News.

WILLIAMS IN GEORGIA

HANDLES PEACH SALES

Following long established custom Salesmanager C. N. Williams of the Orlando Division of the American Fruit Growers Inc. is now in Georgia handling the sale of Georgia peaches. With him are his corps of assistants in the sales department.

Following the conclusion of peach shipments, Mr. Williams will make his annual swing around the principal citrus markets, while his assistants go on to other duties. All will return to Orlando for the opening of citrus shipping.

The year 'round activity of the

AFG forces not only serves the purpose of keeping the Blue Goose and AFG trademarks constantly before trade and consumers every week of the year, but by profitably utilizing the time of all employees and executives throughout the year permits the retention of valuable personnel, yet produces an economy of operation which allows rendering the highest degree of selling service at very reasonable cost.

Before It's Born

"How's the grub here?" asked the new boarder at the table.

"Well, we have chicken every morning for breakfast," replied the old boarder.

"Chicken every morning?" the new boarder beamed. "How is it served?"

"In the shell," grunted the old boarder.

She: So you told all the boys you took me out because I was a good party.

He: Well, I had to tell them something.—M.I.T. Voo Doo.

UNIFORMLY



THE BEST

Success Plus Success

All about over the peninsula of Florida are citrus growers who have achieved substantial successes. Their standings, their known prosperity, their bank accounts testify to the degree of their success.

Like other successful persons they are conservative and valuable citizens. Such growers constitute the backbone of the commercial citrus industry of Florida.

The American Fruit Growers Inc. takes pride in the large number of such growers it is privileged to serve; and the continuity of its service to many such over a period of years.

Sales agency for these growers is not obtained through crop loans or outside considerations. It comes only through superior service and mutual confidence. It is a result of careful selection, not of momentary expediency.

Success gravitates naturally toward success. Continuous business relationships are a natural consequence because of the binding ties of mutual respect and mutual prosperity.

American Fruit Growers Inc.

Orlando, Florida

DEPENDABLE



QUALITY

Citrus Meetings Well Attended By Growers

Specialists of the agricultural extension service have just returned from South Florida, where 23 citrus field meetings were held. Another week of meetings on the East Coast will conclude the program for the year, states H. G. Clayton, district extension agent.

Practically the entire citrus belt was covered, Mr. Clayton said, and the growers showed quite a lot of interest. Usually the meetings were held in or near a grove, and gave the growers a chance to get first hand information from the specialists. Over 600 men attended the meetings.

Most of the time was spent in discussing rust mite control, citrus aphid control, melanose control, cover crops, fertilization and irrigation. E. F. DeBusk, citrus pathologist and entomologist of the extension service and J. R. Watson, entomologist of the Experiment Station accompanied Mr. Clayton. They were joined in Orange and Osceola counties by W. W. Yothers and H. E. Stevens of the U. S. Department of Agriculture.

ASK SUSPENSION OF RATES

The Florida Railroad Commission has been requested by the Growers and Shippers League of Florida and also by Chase & Company, of Orlando, Florida, to ask for suspension of the new rates published by the carriers to Canadian destinations which are proposed to become effective July 21st, according to M. L. Cullum, Traffic Manager of Chase & Company. The proposed rates would increase transportation costs from \$20.00 to \$40.00 per car.

Mr. Cullum states that it is hard for the Florida shippers to understand why the carriers have published these rates after they agreed to withhold the publication until the Interstate Commerce Commission hands down a decision in the pending Florida Freight Rate Investigation, which covers the present rates on commodities covered by the proposed increases. Furthermore, he states the carriers have joined the shippers in appearing before the government officials in an attempt to increase the duty on foreign vegetables to off-set the advantage in cost which the foreign products enjoy. It is highly inconsistent that they should now propose to increase freight rates to an

THE CITRUS INDUSTRY

extent that would more than off-set any relief the tariff might give, and especially since by comparison the present Florida rates are already higher than rates on the products from Mexico and other competing territories.

Incorporators Named In New Citrus Agency

Incorporation of the Florida United Growers, Inc., an organization for the marketing of Florida agricultural products, with the headquarters in Jacksonville and with general field offices throughout the producing districts, was announced by the incorporators. They are, J. C. Penney of New York and Miami, president of the J. C. Penney Company; Edward W. Lane, chairman of the board of the Atlantic National Bank, Jacksonville; Walker F. Coachman, Sr., of Jacksonville and Lake Placid; Burdette G. Lewis, vice president of the J. C. Penney Farms; O. Fletcher Gardner, of Lake Placid, general manager of the Lake Placid Corporation.

State Plant Board Has Whitefly Fungus Now Ready For Distribution

Whitefly fungus may be obtained at any time now from the Entomology Department of the State Plant Board, according to an announcement from Dr. E. W. Berger, entomologist.

This fungus, when applied during the period of summer rains, is very effective in checking the development of the common whitefly and cloudy-winged whitefly of citrus. It has been used by the Florida citrus growers with good success in the past.

A culture of the fungus is sufficient to treat one acre of whitefly infested trees. The price for a culture is one dollar. Directions are sent with each shipment. When desired, shipments will be made c. o. d.

A few dozen cultures of the Yellow Aschersonia, useful only against the cloudy-winged whitefly, are also available and will be included in shipments going to localities infested by this whitefly.

If there is sufficient rainfall the fungus may be introduced now, Dr. Berger says. Fungus obtained now may be kept for several weeks if set in a dry cool place, or for several months if kept in cold storage.

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Jacksonville, Florida

CITRUS COMMENTS

—BY—

Charles D. Kime, Orlando, Florida

This department is devoted to furthering horticultural interests of Florida. Letters of inquiry, discussion or criticism will be welcomed.

July is one of the best months for checking up on grove condition, as at this time the June flush of growth is showing strongly and the fruit has sized up sufficiently large so that its quality can be judged in a preliminary way. Rust mite and other insect pests and diseases control can be estimated or if no work along this line has been done up to the present time, the only safe procedure is to check over the grove and estimate its immediate needs along pest control lines.

The most important thing at this time of the year is rust-mite control for the purpose of producing bright fruit. In most sections, rust-mites have already put in an appearance and control measures have been taken. The two methods usually used in rust-mite control are sulphur dusting and spraying. Both of these need checking over carefully at this time to determine if they have been effective. Briefly, the chance of poor work is much greater with spraying than with dusting, as it is very difficult to thoroughly cover all of the fruit infested with rust-mites with lime-sulphur solution. Several checks made during the present year have shown numerous skips occurring with some frequency where the skipped portions of the tree or fruit was seriously infested with live mites. Such points of infestation will produce russet fruit and such points of infestations will be a source from which the rust-mites will gradually spread to other portions of the grove. Almost invariably, excepting following very careful work, some such locations can be found in any grove where the lime-sulphur solution is used.

The common error in the use of dust is too little material per tree. A less common mistake is the use of too coarse or too cheap a dust. If too little material is used, rust-mites are invariably found on that portion of the tree away from the side on which the dust is applied. The only remedy in such cases is re-dusting with

more material. If a poor grade of dust is used, that is, one carrying too high a percentage of lime or other carrier agent, or one too coarsely ground, live mites will be found mixed in with the dust particles. It always pays on the initial dusting to use an excellent grade of material and to apply it in sufficient quantity. An excessive application will do no harm and will insure in many cases one hundred percent control. This has been especially true with the precipitated sulphur, which is commonly known as Flowers of Sulphur. The other types commonly sold for commercial purposes are ground products and are usually mixed with a carrier agent to permit freer flowing and is called Flour.

In cases of serious infestation of mites, where the control results have been unsatisfactory, it is cheaper to control rust-mites with dust rather than repeating a spray job. In large bearing groves a dusting job is about one-third the cost of a spray job and when done properly is as effective, excepting in those cases where very heavy rains within three days following the dust application. Under these conditions one hundred percent control usually can be secured by dusting again on the seventh or eighth day following the initial application. The explanation seems to be that in the life history of the rust-mite, practically ninety percent of the eggs present will hatch within three day's time, until the eighth day, the newly

Reserve Your Trees

We advise intending planters of citrus groves to select early some good nursery, and without delay to make reservations of their requirements for next Fall plantings.

There promises to be a shortage of planting stock among nurseries of established reputation and known quality output, which suggests the advisability of advance reservations.

We will continue, however, to quote all other stocks at a substantial discount, our specialty as for a quarter-century being high quality sour orange rootstocks budded to proven varieties

Lake Nursery Co.

Capital \$300,000

Oldest Sour Orange Nursery In Florida

Leesburg, Florida

"Please Say You Saw It In The Citrus Industry"

hatched mites are still too young to lay fertile eggs. Therefore, the second application of dust made on the specified interval, kills all of those mites which hatched out during the seven or eight days since the first dusting, and there are no eggs left to hatch out and re-infest, even if this second application is washed off immediately. This method of double-dusting is probably the most satisfactory method of mite control that we have. Next in satisfaction and results would be a check made over the grove occasionally, following the initial dust application and the repeating of the dusting as may prove necessary. Dusting cannot be done during a rain, but only a short time between is necessary for the sulphur to kill all live mites. Early morning or night dusting is excellent; however, the main thing is complete distribution of the dust over all parts of the tree.

Checking back on the last several years we find that some years as many as four dusts are necessary under this method and that other years, especially in those cases where the initial dust remains undisturbed by any rains for a period of five days or a week, only one dusting proved necessary. There is, then, a factor of

THE CITRUS INDUSTRY

chance or luck, which must be taken into consideration.

With the prospect of a normal crop of fruit from our groves this coming season and with the further prospect of a large quantity of fruit from groves not yet in a position to bear high quality fruit, we may be sure that bright fruit will be the only fruit that will bring a real income during the next shipping season.

The next point of serious importance to the grower that should be checked over, is that of fruit quality. To those growers familiar with the points of fruit quality, an estimate of the extent of over-ammoniation that may occur and the smoothness of skin can be made at the present time. Unless something has been done to improve quality during the last two applications, a coarse, rough-skinned orange will remain coarse and rough-skinned and produce a poor quality fruit unless something is done to improve it within the next few weeks. It seems probable from the condition of the crop at the present time no quality improvement can be hoped for after the middle or last of July. Just what can be done and should be done before that time depends entirely on the individual prop-

erty, and the kind of fertilizer that has been applied during the last two or three applications.

Among the important points affecting future condition of the grove and fruit quality, the one of a cover crop deserves attention. The better the cover crop, the surer the owner may be that his grove will remain in a healthy condition. If, as occurs in many locations, there is a lack of cover crop growth, one should certainly be planted. Legume crops, such as cow peas, velvet beans, beggar weed and crotalaria are desirable. In their absence, it may be better to stimulate the natural growth of grass which occurs. It is a serious mistake to cultivate the grove to the extent that the natural grass is killed out, as in that case sooner or later expensive efforts must be made to replace it, or money must be spent in the purchase of organic materials.

As a general summary, we can figure that the best thing an owner can do regarding his grove at the present time is to make a record of its condition, noting the amount of growth the trees are putting on; the amount of the crop; whether it is smooth-skinned or coarse; the size of the fruit and whether it appears to be of normal color; the amount of



SUNSET Citrus Wraps

Are Strong, Pliable and Well Formed.

They Twist Down Close.

Good Looking, Well Printed and a standard for comparison.

FRED C. STRYPE

140 Lafayette Street

New York City

Splitting of fruit caused by Dieback and Ammoniation can be stopped by the use of

NICHOLS TRIANGLE BRAND BLUESTONE

(Copper Sulphate)

With the proper care and foresight you can make this your most profitable year. The use of Nichols Triangle Brand Bluestone is your best insurance against loss in your grove operations. It is the brand most generally used by Citrus growers and Truckers for Dieback control and the preparation of home made Bordeaux Mixtures.

TRIANGLE BRAND COPPER SULPHATE
THE STANDARD OF QUALITY
99% PURE

NICHOLS COPPER CO.

25 Broad St.



New York

cover crop that is showing up, and especially to note the fertilizer formula and tonnage which has been applied in the spring and in June, as the fall formula depends entirely on past applications and the condition of the grove may be in during the month of October and November. In other words, while we usually figure that the fall application will be a high potash formula, it may be necessary and vital for the 1928 crop that it also have a high ammonia, as often if this is not done, a light crop may be normally expected following the heavy crop which we have in prospect this present season, and last, but not least, keep the fruit bright.

Skinner Ships Goods To Far Off Alaska

The Florida Citrus Machinery Co., of Dunedin, Florida, of which Mr. B. C. Skinner is president and general manager, recently received an order for the shipment of a scuffle hoe to a lady in Alaska. The scuffle hoe is one of the many grove implements manufactured by the Florida Citrus Machinery Co. and is widely known throughout the citrus belt. Mr. Skin-

THE CITRUS INDUSTRY

ner was somewhat surprised however to receive this order from far off Alaska, where agricultural pursuits are popularly supposed to be somewhat restricted.

The hoe was ordered by and shipped to Mrs. H. R. Hoelke, Pirate Grove, via Steward & Sand Point, Alaska.

This is just another evidence that the fame of a good article travels far and fast.

Richards Locates In Washington, D. C.

M. A. Edwards, until a little more than a year ago district manager at Winte Haven for Chase & Co., is now located at Washington, D. C., where he is in charge of the office of Frank H. Stevens & Co., produce brokers of New Haven, Conn., where he is handling large quantities of car lot shipments of Florida fruits and vegetables.

In writing The Citrus Industry to have his copy of the magazine sent to his new address, Mr. Richards wishes to be remembered to his many Florida friends.

When first leaving Florida, Mr.

Richards went to California, but after a year spent there, decided to get back where he could handle Florida products, even though he is not in direct touch with Florida's wonderful climate and exceptional business conditions.

IRRIGATION OF CITRUS TREES

Continued from page 15

without being properly pressed or tamped, or the space in making field joints were not properly filled with mortar".

Every member of the home demonstration club at Jay, Santa Rosa County, has joined the all-year garden contest, reports Miss Ethyl Holloway, home demonstration agent. A year ago not a single member of this club was interested in club work of any kind.

Don't let the farm implements which are not in use stand out in the weather. They will last much longer if put under shelter.

Bright, figured materials make attractive curtains for a room with plain floors and walls.

Always Dependable
IDEAL
Fertilizers

A Single sack or many tons

WILSON & TOOMER FERTILIZER CO.
IDEAL FERTILIZER

Manufactured Exclusively by
WILSON & TOOMER FERTILIZER COMPANY
JACKSONVILLE, FLORIDA

CUT PRODUCTION COSTS WITH A
CATERPILLAR

"Caterpillar" Tractors are making records in Florida . . . by cutting production costs, increasing production, speeding up operation . . . records you should know about . . . records you can learn about by reading our new "Citrus Fruits" booklet. A copy is yours for the asking.

McDONALD & BURGMAN

Distributors for Florida

JACKSONVILLE CLEWISTON MIAMI

CATERPILLAR

"Please Say You Saw It In The Citrus Industry"

July, 1928

Watson Advises Prompt Control Of Rust Mites

Rust mites are appearing on young fruit in sufficient numbers to demand the attention of growers in many parts of the citrus belt, says J. R. Watson, entomologist of the Florida Experiment Station, who has just returned from a visit to the citrus section of the state.

Practically everywhere he went, Mr. Watson found a large crop on the trees, and indications now point to a big yield this fall. This fact, points out Mr. Watson, is a strong reason why growers should keep a strict watch on their young fruit and be ready to combat the rust mites.

When the mites are found in any considerable numbers the trees should be sprayed or dusted at once. It is a good idea for growers to provide themselves with good pocket lenses, and familiarize themselves with the appearance of rust mites. During dry periods a constant watch should be kept.

Rusted fruit uniformly brings a lower price on the market than does bright fruit. It is smaller, and consequently takes more to fill a box.

THE CITRUS INDUSTRY

The keeping qualities of the fruit are also impaired, it is stated.

Fruit once rusted cannot be brightened again, so that control of rust mites calls for prevention rather than cure. The prevention consists in spraying the trees with one part of lime-sulphur to 50 parts of water, or dusting with sulphur.

SCHOLARSHIPS GIVEN FOR FARMERS' WEEK

Fifteen hundred women who are majoring in the food nutrition and health program of the state home demonstration department are eligible to compete for four scholarships to Farmers' and Fruit Growers' Week, which will be held at the University, August 13-18.

Early in the year score sheets were sent out to all of the home demonstration agents. These will be filled and returned to the state office by the first of August and those having the four highest scores in nutrition and home baking will be given free trips to Farmers' Week. The scholarships are donated by the Soft Wheat Millers' Association.

Interesting features of the food nutrition and health program at Farmers' Week will include salad

Twenty-five

making demonstrations, physical and medical examinations for women, posture contest, and better baking. An exhibit of illustrative material for nutrition programs will be made.

An association has been formed in Pinellas County to promote the growing of strawberries. Over 100 acres have been pledged for next year, according to E. H. Hurlebaus, county agent.

Doc Hiller says: Do not denature your garden by letting somebody else do all the hard work in it.

IMPRESSIONS

Continued from page 16
ful as a cricket, and holding the hospital record for the number of daily visitors, his daily quota being unlimited. Nurse told us the previous day's tally was eighteen visitors calling upon him. It's a long time now that he has been out of the AFG line-up because of illness. Overwork paves the way for a lot of trouble it seems. Trying to hold the varied interests in line in the original Clearing House negotiations through last Summer and Fall was, in addition to his regular duties, too much a load for the genial Frank.

Osborn Brushes For Cleaning Citrus Fruit

The more progressive packing houses have come to appreciate the real value of using Osborn Brushes for washing and polishing citrus fruit.

Osborn Brushes are carefully and accurately made to fit all standard scrubbing and polishing machines. They can be installed easily and with a minimum of time and expense.

Only the best grade of straight grained hardwood lumber is used. Hair and fibre are carefully selected to give you longer wear and a higher quality of work.

Osborn stands back of its product so that you can depend on thoroughly satisfactory workmanship and material.

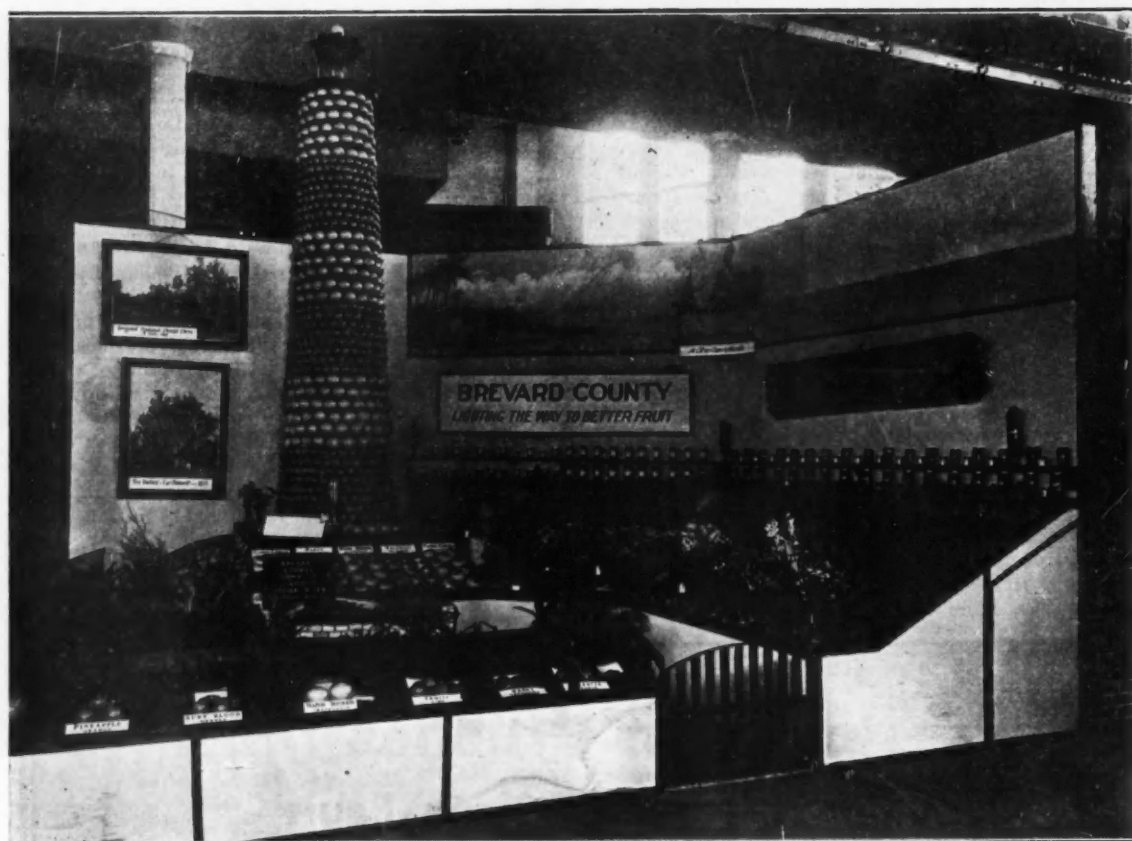


THE OSBORN MANUFACTURING COMPANY
INCORPORATED

5401 Hamilton Avenue
Cleveland, Ohio

"Please Say You Saw It In The Citrus Industry"

Brevard County Exhibit at Sub-Tropical Fair and Mid-Winter Exposition Orlando, Fla., February, 1928



In 1932, John D. Sheldon came to New Smyrna and purchased sweet oranges from the Indians who refused to tell him the location of the groves. However, in his hunting trips through Trumbull Hammock, he came across a block of sixteen hundred seedlings. Six hundred of these were transplanted by him on what is now known as the Packwood place, south of New Smyrna.

Captain Dummitt secured bud wood which he put into sour orange seedlings growing wild on north Merritt Island. Some of these trees are still alive, though not in extra good condition because of poor care during the last few years. They survived the freezes of 1835, 1886, 1894-95, and 1899 which killed out most of the citrus fruit in the more northern part of the State.

In 1856 Henry Wilson, son-in-law of Captain Burnham, keeper of Canaveral Light, budded a number of

sour orange trees found growing wild on the banks of the Banana River west of Canaveral Light House. These trees were probably planted by the Indians or Spaniards a number of years before. The buds used on these trees came from a wild, sweet tree growing in the Happy-Go-Lucky Hammock about fifteen miles to the North, and also from Captain Dummitt's fifteen acre bearing grove.

J. H. Fowler of Port Orange, wrote on January 9, 1875: "The cleared portions (Dunn Lawton plantation) were originally covered with large, wild groves, scattering trees of which, now standing, I have found by actual measurement, are four feet in circumference."

The real work of citrus development started about 1870 in various sections of the State. One of the largest sections to ship commercially in early days was Citra, Marion County.

Some groves had been planted in

Volusia County as early as 1864. In the proceedings of the Florida Fruit Exchange, July 1, 1885, it is stated that within a period of about ten years, the exports of oranges from Florida rose from 50,000 boxes, valued at \$125,000.00 to one million boxes valued at two and a half million dollars. At this meeting, the question of glutted markets was freely discussed. This Exchange was a marketing organization, and had about 360 members, among whom were, C. B. McGruder, H. S. Williams, J. F. Wortes, S. Ryder, D. W. McQuigg, Gabriel Gingras of Rockledge and W. H. Sharp, City Point.

According to the Federal Farm Census of 1925, there were approximately four thousand acres of Oranges and fifteen hundred acres of Grapefruit in Brevard County. Normal annual shipment of citrus fruit from Brevard County is approximately 725,000 boxes.

Cold Storage Plant for Citrus Being Erected at Tampa

A \$3,000,000 cold storage plant and warehouse, equipped for cooling, storing, packing and shipping of citrus fruits, is being erected in Tampa by the Tampa Union Terminal Company, of which Clyde Perry is president and treasurer; F. L. Judd, vice-president and secretary; H. T. Lykes, vice-president. Kenneth I. McKay is chairman of the board.

Other directors are D. B. McKay, S. E. Thomason, J. T. Swann, L. B. Skinner, Enrique Pendas, Russell H. Tarr, L. C. Edwards, Isaac Maas and S. M. Sparkman, Jr., of Tampa, and Bond Collins and William S. Merrick, of Gillet and Co., investment brokers, of Baltimore, who handled the financing of the project.

The property, which runs from Ybor channel to Thirteenth street, was purchased from G. A. Miller, Mr. Edwards and Mr. McKay.

Work Already Started

A contract for construction has been awarded to the Parklap Construction Corporation of Florida. Engineering work has been in charge of Parsons, Klapp, Brinckerhoff and Douglas, New York engineering firm.

As soon as construction is far enough along to permit operation, the warehouse, packing room and cold storage will be turned over to the organization now conducting the cold storage properties of Hamlet and Perry Brothers, of which Mr. Perry is executive head. The marine terminals will be under the supervision of Lykes Brothers Steamship Company.

"Projects of this kind have been in the making here for several years," Mr. McKay said, "with several different organizations attempting to complete financial arrangements for such a plant on several locations. We believe that our location is the best on Tampa's harbor, and we have property large enough to take care of the present project and allow for future expansion. The plant will have 1,300,000 feet of cold storage space, and other facilities will be in keeping with a well-balanced plant to take care of contemplated business.

"We undertook this project only after extensive engineering surveys had proved the need of this plant. It is the belief of the organizers of the company that the building of this plant will mark a new era in the distribution of Florida products, as well as result in the improved distribution

locally of products brought to this city.

"In addition it will open up to the grower of Florida citrus and other farm products new markets at reasonable shipment rates, including the entire mid-west, where freight rates are not now favorable to the Florida grower."

Those behind the project expect to have the wharf- wharfside warehouse and enough of the two main buildings completed in time to handle a considerable part of next season's crop.

Southeastern Supply Company Occupies Own Building

The Southeastern Supply Co. is the new style of the former Southeastern Electric & Supply Co. of Orlando, which is now established in its new building opposite the Orlando Coliseum.

Messrs Kenedy and Johnson con-

tinue as the principals of the new organization which has greatly enlarged its activities. The company still carries a large number of lines of well known supplies which are sold to citrus packing houses, and which are carried in stock in the Orlando warehouse for quick shipment.

In addition the company is now manufacturing and selling a complete line of packing house machinery, and also is operating a very modern machine shop for repair work of various kinds. The company further controls and sells the Non-Bruise picking bag, which last season was introduced to packers for the first time and which met with large sales.

Hi-Hat (just back from shooting in Scotland): We had some wonderful hunting!

Dim-Wit: Oh, yes! Whadja shoot?

Hi-Hat: Mostly pheasants.

Dim-Wit: They certainly do give the lower classes a rotten deal over there.—Spartan Spasms.

Flo-Mae: Did you water the fern, Nora?

Nora: Sure, mum. Don't you hear the water dripping on the carpet?—Ollapod.

Clamp Trucks

Rebuilt for

\$19.50

For \$19.50 we will replace all working mechanism except clamps, put on new roller bearing wheels and new axles. Makes the old truck as good as new. If old ears are worn off your clamps we will weld on new ears, fill in old holes and rebore for the sum of \$3.50 a set.

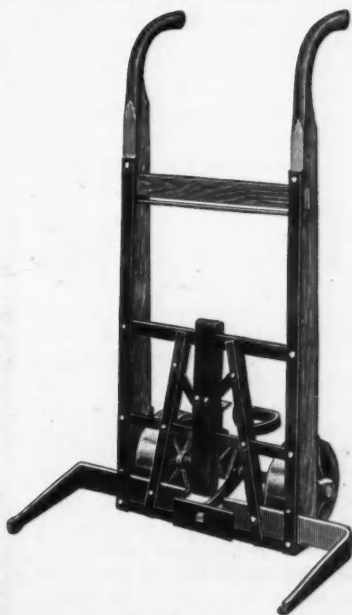
Our clamp truck has many new improvements. Pivot pins have been changed from $\frac{3}{8}$ to $\frac{1}{2}$ inch. Toggle bars have been changed from $\frac{1}{4}$ to $\frac{1}{2}$ inch. A steel plate has been welded to the lower cross bar against which ends of clamps bear in picking up a load. Eliminates spread of outer clamp ends and takes strain off of pins and cotter.

In repairing your old truck we convert it into our new style improved truck as above described. Send in your old trucks now. Get ready for the season ahead.

FLORIDA CITRUS MACHINERY CO.

B. C. Skinner, Pres.

Dunedin, Florida



THE GROWERS' OWN PAGE

BROTHER BILL IS SOLD ON CITRUS FRUITS

Dear Jim:

You will recall that in my letter to you of March 5th., I was telling you some of my experiences while in New York, and some of the things that I learned about the value of citrus fruits.

The conversations I had were so interesting that I have never gotten them out of my mind. They opened up to me some of the most important possibilities and some of the most valuable information regarding the uses of fruit.

The story really began with the health of the mother about three months before the birth of the child, and these physicians told me in words which I could understand, how very important it is to the formation of the child's skeleton that large quantities of calcium, potassium and sodium should be included in the mother's diet, together with certain vitamins which would make it possible for her to use these salts.

They explained how important these mineral salts were during the nursing period, and that the mother's diet should be such that would not only provide these salts for the child but protect her own health from such serious dangers to which she is exposed at that time. They explained that these salts were abundant in citrus fruit.

They then took up the matter of bottle fed babies and the addition of orange juice to the milk at each feeding in order to supply some important elements in which the milk diet is likely to be a little deficient.

Skipping over the next few years of the child's life, they came to the question of children seriously underweight as seen by the school physicians and what can be done about them. It seems that the best thing yet devised is a liberal quantity of orange juice daily, given perhaps at the morning recess with, perhaps, no change in the home habits of eating. Children supplied with oranges in this way sometimes quickly outstrip all other children in the question of growth. The children needing such administration of orange juice are by no means always from the least well-to-do homes. They are quite as

This department is devoted to the growers, for their use in giving expression to their views and a discussion of growers' problems. Any grower is welcome to make use of this department for the discussion of topics of interest. The only requirements are that the articles must be on some subject of general interest, must be reasonably short and must be free from personalities. The editor assumes no responsibility for views expressed, nor does publication imply endorsement of the conclusions presented.

frequently found in the homes of the rich.

I do not remember all that was said, but I was very forcibly struck

by the statement by one physician to whom the others listened with respect, that he had not lost one of his last thirty cases of incipient cases of pneumonia, tonsillitis or influenza. He has cleaned them all out with high enemas; given them hot baths; gotten them into bed without chilling; and taken away all other food except grapefruit juice and orange juice. He regards the results with great favor because his patients gain in strength of resistance almost from the beginning.



Pays

IN INCREASED SIZE AND YIELD OF TANGERINES

and EARLY ORANGES

AN APPLICATION of three to five pounds of NitraPo per tree if applied before the middle of August, will add hundreds of dollars to your grove's yield in better quality and larger sized Tangerines and early Oranges.

The use of NitraPo before August 15th. not only will size the fruit and make it of excellent quality, but in case of excessive dryness, there will be considerably less dropping, because of the quick acting nature of the pure Potash available in NitraPo.

The perfect carrying qualities imparted by the use of NitraPo insure top prices on the early market for your fruit.



NITRATE AGENCIES

PENINSULAR CASUALTY
BUILDING



JACKSONVILLE
FLORIDA

"Please Say You Saw It in The Citrus Industry"

July, 1928

They then went on to tell me some more amazing things about the value of orange juice to children and adults in the way of building up resistance to such diseases as I have just mentioned. They explained that they prescribed orange juice in liberal quantities as a part of the regular diet and that after a while the physical resistance is built up in such a way that the person does not readily take cold.

They wanted to know, as one man, how anybody who understands what frozen oranges are likely to do to the person who eats them could possibly ship them, and thereby cause addition danger to innocent people and probably customers, some of whose lives may already be in a good deal of danger. I gather from what they said that an orange which has been frozen seems to lose its desirable features and may do great harm.

I shall not bother you with the description of the dinner or reference to any more of their inquiries, but I want to tell you that these men are all for us as long as we will raise good fruit. They told me that this was the general attitude throughout the medical profession. They say that we might as well have the unpaid-for services of many thousands of physicians and dentists in the selling of our fruit, if we could have some control over the packing and shipping in such way as to provide good looking, palatable and safe fruit for the average person. They think that we should all get together and tell the public the story of the wonderful food value in good oranges.

Now, when I walk through my grove, I don't just see oranges, which I hope will some day go into boxes. There comes constantly into the picture the images of some mothers with healthy children, whom they are trying to keep healthy and others with sickly children, whom they are trying to make well. I think a little of myself as a partner in the task of making those children robust. I think of the fathers and mothers stricken with influenza or pneumonia and the little ones dependent upon them.

I have no difficulty in receiving within myself that when ever the truck takes a load of oranges through my gate, each individual orange shall be such as I can send on its mission to any of these people with the confidence that I have put into it everything that I know or can learn about how to grow good fruit.

Affectionately your brother,
Bill Jr.

THE CITRUS INDUSTRY

Schnarrs Sulphur Mill Nearing Completion

Work of rebuilding the sulphur mill, which recently was destroyed by fire, at J. Schnarr & Co.'s big insecticide plant at Orlando is proceeding rapidly and the new and enlarged mill will be operating shortly.

Only the sulphur mill was destroyed by fire; and it is this which is being replaced by a new and larger outfit which will give a greater dust manufacturing capacity than heretofore.

The Schnarr sulphur mill is said to be the only air flotation mill in operation in the Southeast; and with its large volume of business is a most impor-

Twenty-nine

tant part of the Schnarr operations. In addition to its increased capacity, the new sulphur mill, according to C. M. Slaughter head of J. Schnarr & Co., will reflect a number of new ideas in the construction which promise to make it most efficient in operation.

An American was prowling around a Scottish churchyard. His eyes caught the epitaph "Lord, she was thin."

"Say, sexton, what d'ye make of that?" he asked.

"That's all right, sir; the sculptor went over near the edge of the stone and didn't leave room for the 'e'."

ETHYLENE

*Universally used by the
citrus industry for coloring*



**Ripens, colors and blanches
fruits and vegetables**

Economical / Safe / Clean

For information write to

**CARBIDE AND CARBON
CHEMICALS CORPORATION**

30 East 42nd Street, New York, N. Y.

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Warehouses are located in all important centers in the United States



Unit of Union Carbide and Carbon Corporation

"Please Say You Saw It In The Citrus Industry"

Thirty

Prominent Citrus Shipper Dies

R. W. Burch, head of the shipping house of R. W. Burch Inc., died at his home in Plant City on Friday night, June 29, of paralysis of the heart.

Active to the Last

Although Mr. Burch had been a sufferer from the heart malady for some years, he was able to continue active direction of the large business organization of which he was head, until the very last. He spent Friday in the usual business round, and early Friday night appeared to be in his ordinary health. He drove to Plant City from Tampa early in the evening.

Mr. Burch was born Dec. 31, 1888, at Bowling Green, Ky., where he lived until 1902, when he moved to Miami. He resided there for eight years. He moved to Plant City in 1910, to handle vegetables for H. W. Bird with whose organization he had been connected at Miami, for several years. Mr. Burch married after locating in Plant City. He is survived by his wife Mrs. Evelyn Crum Burch and one step-daughter, Betty Rose Wright, and his mother, Mrs. W. L. Burch of this city.

Business Career

For many years past R. Wade Burch had been an active and forceful business factor in this community, and the entire state. He was 38 years old at the time of his death, and was active in the management of one of the greatest citrus and produce marketing agencies in Florida.

Realizing two years ago that his strenuous business activities had so impaired his health that serious complications might be expected at any time, Mr. Burch began perfecting his organization in order that it might carry on effectively in the event of his removal. In September, 1927, his business was incorporated, with the following officers: R. W. Burch, president; C. O. McRae, vice president; C. R. Beauchamp, secretary and general manager; and L. J. Prosser, treasurer. The style of the firm is R. W. Burch, Inc., and the capital stock is \$300,000. The company handled fruit for approximately 800 growers in Hillsborough, Pinellas, Manatee, Pasco, Hardee, Polk, Highlands, DeSoto and Hernando counties during the past season.

John S. Barnes, of Atlanta, lifelong friend of Mr. Burch and identified with the produce field in Plant City for the past 25 years, will con-

THE CITRUS INDUSTRY

tinue as in the past to occupy a prominent place in the affairs of the Burch company. Mr. Barnes is president of the Florida Mixed Car Company, a subsidiary company of R. W. Burch, Inc. This branch of the company's activities will be continued under Mr. Barnes, and in addition Mr. Barnes will have a close connection with the operations of the parent company.

PARRISH TO BUILD \$50,000 PACKING PLANT FOR CITRUS

J. J. Parrish, president of the Nevins Fruit Company, with large citrus holdings in Brevard county,

and a large packing house in Cocoa, gives out the announcement that the company will soon begin the erection of another \$50,000 packing house for citrus fruit on the site two miles north of Titusville, where a packing house for the fruit in northern Brevard county was destroyed by fire last fall. The new packing plant will have included in it all the latest machinery used in modern packing houses, and a packing capacity of eight carloads per day.

"Well, you've made your bed," said Mrs. Plymouth Rock to her daughter, "Now you'll have to lay in it."—Stanford Chaparral.

HOTEL HILLSBORO

Tampa, Fla.

TOP O' THE TOWN

European Plan, Fireproof 300 Rooms With Baths

THE CENTER OF TAMPA



FERTILIZER

The Old Way

You bought a 200-pound sack containing 150 pounds of plant food and 50 pounds of filler.

200 Pounds	
8 lbs.	Nitrogen
8 lbs.	Ammonia
20 lbs.	Superior Bone
15 lbs.	AMMO-PO
84 lbs.	Acid Phosphate
15 lbs.	Filler
50 lbs.	Filler
200	Pounds

485

A & G Method

You buy a 150-pound sack containing 150 pounds of plant food only—no filler. You save the cost on freight, haulage and distribution of worthless matter.

150 Pounds	
8 lbs.	Nitrogen
8 lbs.	Ammonia
20 lbs.	Superior Bone
15 lbs.	AMMO-PO
84 lbs.	Acid Phosphate
15 lbs.	Filler
150	Pounds

Write for Our New Farm Record Book

ATLANTIC & GULF FERTILIZER CO.

C. NASH REID, President
Jacksonville, Florida

United States Civil Service Examination

The United States Civil Service Commission announces the following open competitive examination:

ASSISTANT MARKETING SPECIALIST

(Fruits and Vegetables)

Applications for assistant marketing specialist (fruits and vegetables) must be on file with the Civil Service Commission at Washington, D. C., not later than July 24. The date for assembling of competitors will be stated on their admission cards, and will be about fifteen days after the close of receipt of applications.

The examination is to fill vacancies in the Bureau of Agricultural Economics, Department of Agriculture, for duty in Washington, D. C., or in the field.

The salary range for this position is from \$2,600 to \$3,100 a year. Higher-salaried positions are filled through promotion.

The duties are to conduct investigations of the handling, marketing, and distribution of fruits and vegetables; making a careful study of the facilities available for handling and transporting these products; securing market information relative to their supply, movement, and prices; assisting in the development of the market news service for these products, and in the securing of information for use in the determination of market grades and standards for these products; the inspection of fruits and vegetables in the Food Products Inspection Service of the Bureau of Agricultural Economics, and otherwise assisting in the betterment and improvement of marketing conditions affecting the handling of these products.

Competitors will be rated on practical questions relative to the duties of the position, a thesis to be handed to the examiner on the day of the examination, and their education, training, and experience.

Full information may be obtained from the United States Civil Service Commission at Washington, D. C., or from the secretary of the United States Civil Service Board of Examiners at the post office or custom-house in any city.

"Why don't you advertise?"

"It's no use. It ruins my business."

"Ruins your business? How?"

"I tried it last year and the people nearly bought everything I had."

—Okla. Whirlwind.

Featuring- The Perfect Summer Spray

Absolute safety goes hand in hand with thorough effectiveness when you use

Schnarrs New Process Special Spray Formula

A special blend of white and highly refined NEUTRAL oils of high viscosity and medium gravity. NO SPREADER IS NECESSARY.

A careful check of hundreds of barrels sprayed during the hottest days of 1926, '27 and '28 reveal no single instance of spray damage.

Scale is beginning to show in many groves. Spray with Schnarrs New Process Special for results with safety.

J. Schnarr & Company

Pioneers in 1906 --- Leaders Still in 1928
Complete line of Sprayers and Dusters

Orlando, Florida

Winter Haven, Florida

DECAY IN CITRUS

FRUITS IN TRANSIT

Continued from page 5
that is held above 75° F. From 65° to 75° F. Phomopsis stem end rot makes its best development. Blue mold develops to best advantage from about 55° to 65° F. By promptly cooling the fruit to 50° F., stem end rot can be practically eliminated over a three weeks' marketing period in fruit that would show a 20% to 30% loss in the same time at temperatures above 70° F. But every day of exposure to higher temperatures gives the rot a start and lessens by several days the average life expectancy at the lower range of temperature. It is highly important to cool the fruit promptly after picking, especially in warm weather.

6. Promptness in handling: To insure not only arrival in good condition at the terminal market, but also actual consumption of the fruit without loss from stem end rot, it is important to keep the fruit moving without unnecessary delays, particularly during warm periods. In mid-season with normal movement there is little loss from stem end rot, because of prevailing cool weather.

For the prevention of blue mold rot, the following measures are important:

1. Careful handling of the fruit at all stages during picking, hauling, packing, and subsequent handling to prevent any breaking of the protective epidermal covering. Watch closely to avoid such things as clipper cuts, long stem punctures or injuries by packing house machinery.

2. Surface dryness of the fruit. Avoid picking fruit while wet from dew or rain; see that it is thoroughly dried before wrapping and packing; and avoid sudden changes of temperature that will produce sweating after it is boxed.

3. Clean wash water. Keep mouldy fruit out of the soaking tanks in so far as is practicable. Renew the wash water frequently.

4. Chemical treatment in the packing house, is referred to under Heading 4 for stem end rot control.

5. Low temperatures. In general temperatures of 40° to 45° F. are best for controlling the two types of blue mold rot. This range is lower than is required for stem end rot control. Precooling is a very effective means for the purpose.

It is apparent that each kind of rot has its peculiar relationships to the marketing problem, likewise its own cause and methods of control. Broadly speaking these involve preventive

THE CITRUS INDUSTRY

measures in the grove, careful handling and packing, suitable transportation, and proper storage. Growers, packers, carriers, dealers, and consumers are involved! Responsibility for loss can not be arbitrarily shifted to the shoulders of any one agent. Each must do his part to prevent the waste and economic loss that results from citrus fruit decay.

UNUSUAL ACTIVITY ON FLORIDA FARMS

Florida farmers are planning for increased acreage this year, according to reports sent in by the county agents of the Agricultural Extension Service.

Farmers are increasing their planting acreage and more farmers are clearing new land for planting, says William Gomme, acting county agent of Duval County. There is a decided "back to the farm" movement in that section it is stated.

From Citrus County comes the report that there is at least 100 percent more farming operations than a year ago. County Agent I. R. Nolen declares that there are many new comers and in some cases the expansion is due to increased acreage.

The same reports come from Baker County. County Agent Robert F. Ward says that there will be a larger acreage planted this year than last year due to the fact that there are many who are returning to the farms.

In Taylor County it is conservatively stated that the acreage in cash crops will be enormously increased, with even more feed and food crops being planted than is usual, reports R. S. Dennis, county agent.

Farmers in Columbia County are unusually active breaking land. C. A. Fulford, county agent, estimates that the plantings this year will more than double those of previous years. A decided interest in pimento peppers has been shown in that section recently, and 250 acres have been pledged by farmers.

NORTHERN CALIFORNIA HAS NEW EARLY RIPENING NAVEL

Redlands, Calif. — A. D. Shamel, Federal citrus expert, has developed a Washington Navel orange which ripens in October. As a result, a strip 100 miles long and 20 miles wide between Fair Oaks and Oroville will probably become noted for its early fruit. Plantings of the early maturing variety will be extensive. The crop will be out of the way by the time the Navel crop of southern

"Please Say You Saw It In The Citrus Industry"

July, 1928

California is ready. Citrus lands in the Sacramento Valley will, no doubt, take on a boom as the result of the new variety's being established in that district.

**For
Summer Control
of Citrus Pests**

For Scale, Mealy Bug, White Fly, Red Spider, and other citrus insect pests, spray your trees with VOLCK. It is the only oil spray combining high killing effectiveness with the necessary margin of safety for dependable summer application.

Talk with your nearest dealer

**CALIFORNIA SPRAY-
CHEMICAL COMPANY**
O. R. Blois, District Sales Mgr.
61 W. Jefferson St., Orlando, Fla.

VOLCK

The Scientific Insecticide

Announcing our

Removal

to our new factory and
warehouse building just
completed at

**1714 Chicago Ave.
Orlando
Opposite Coliseum**

Write for our new catalog of
complete line of packing house
supplies.

**Southeastern
Supply Co.**

Orlando

Formerly Southeastern
Electric & Supply Co.

SOME OBSERVATIONS

ON GROVE HEATING

Continued from page 9

cause if it is done any other way he may as well lose what he has invested in heaters, fuel, etc., as well as his fruit.

In closing I want to discuss briefly the organization of crews for carrying on the heating of a grove. Many of the growers who are heating groves in this state are quite new to this sort of thing and a few pointers may help them out. Added to the inexperience of the grove owner is the lack of experienced help which makes the situation doubly difficult. The heating campaign should be thoroughly planned before hand and if a grove is large help should be trained

THE CITRUS INDUSTRY

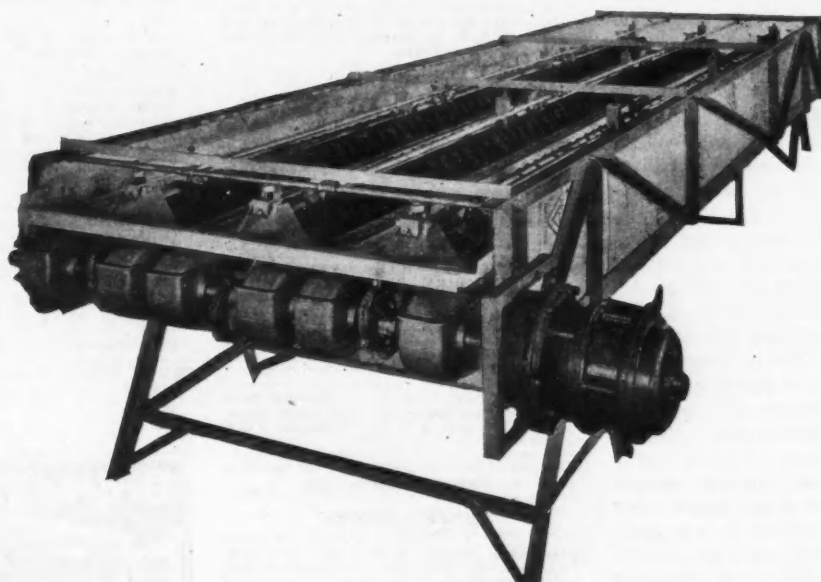
in what they are expected to do; pickup labor should not be depended on for more than a few rough jobs. A very good procedure is to lay out the grove in blocks of suitable size and have a man trained to handle each block. He should be thoroughly familiar with the lay of the land and what will have to be done and should have a thermometer properly mounted at a central point in his block. He should receive instructions beforehand as to the temperature to be maintained and given enough help to keep up the fires in his area and then he should be kept there. An emergency crew can be held to be sent wherever needed to refill pots or haul in fuel and have them in charge of a good man who knows what to do and

Thirty-three

where all the necessary tools are. This makes it possible for the man in charge to keep moving from place to place and checking up on conditions and needs, he should never go to lighting pots himself for the general supervision is many times more valuable than the services of one man. Unless this sort of thing is carefully planned and carried out an area may get by without anyone noticing it for a long time and severe damage may result through failure to keep up the fires.

Dairymen in Flagler and Volusia counties recently held a meeting for the purpose of organizing an inter-county dairy association.

Skinner's New Steel Frame Washer



The new Skinner Washer is built on an all steel foundation and otherwise greatly improved. The steel frame with welded joints gives a solid, rigid construction which holds all working parts in perfect alignment. The working characteristics have also been greatly improved. In every way the new Skinner Washer is better than the old type wood frame washer formerly made by us and which is doing satisfactory work in over 90% of the packing houses in Florida.

The Washer is only one of our new all steel units. The whole line has been redesigned and greatly improved. Prices have not been advanced by reason of these improvements—we are selling this new steel machinery at the same old price.

You cannot afford to buy elsewhere until you have first had a Skinner proposal.

Florida Citrus Machinery Company

B. C. Skinner, Pres.

Phone 2556

Dunedin, Florida

"Please Say You Saw It In The Citrus Industry"

SEVENTH ANNUAL FARMERS' AND FRUIT GROWERS' WEEK

Continued from page 3

and aphid control, by J. R. Watson, entomologist of the Experiment Station.

Cover crops for the citrus grove will be taken up Wednesday morning. Dr. A. F. Camp, associate horticulturist of the Experiment Station, will speak on the function of cover crops in the grove. Dr. R. M. Barnette, soils chemist, will give a technical talk on the cover crop from a soil building standpoint. L. H. Alsmeyer, Highlands County agent, will discuss cover crops for the ridge section, and H. E. Dale of Vero Beach will take them up from the standpoint of growers in the East and West Coast sections. W. E. Stokes will touch briefly on varieties of Crotalaria, and J. R. Watson will thresh over the problem of pumpkin bugs in connection with cover crops.

Thursday morning Dr. R. W. Puprecht, Experiment Station chemist, will outline some of the recent results of fertilizer experiments. Dr. O. C. Bryan, professor of agronomy, will also talk on fertilizer experiments. Dr. R. M. Barnette will explain the leaching of plant food. A round table discussion of fertilizer problems will end the morning program.

Frost protection and grove irrigation will have their inning Thursday afternoon. These subjects will be discussed by Dr. Camp and E. F. DeBusk, respectively. Exhibits of irrigation materials and equipment will be on hand, and a round table discussion on irrigation will be held. Features for Friday and Saturday are being worked out.

Facilities of the University dormitories and mess hall are again being thrown open to visitors at very nominal charges. In addition, water, lights, toilet facilities, and camping space will be provided on the campus this year for those who want to bring along the old tent and make an outing of it. Camping visitors can secure meals at the University mess hall if desired.

A. P. Spencer, vice-director of extension, is anxious that farmers and farm women who contemplate attending Farmers' Week notify the College at Gainesville in advance, so that better plans and arrangements can be made. If there is further information desired, it can be obtained by writing the Agricultural Extension Division at Gainesville.

Thirty-five poultrymen in Lake

THE CITRUS INDUSTRY

County have signed up to follow instructions of their county agent and extension poultryman in growing healthy chicks.

CLASSIFIED

Advertisements

The rate for advertisements of this nature is only five cents per word for each insertion. You may count the number of words you have, multiply it by five, and you will have the cost of the advertisement for one insertion. Multiply this by the total number of insertions desired and you will have the total cost. This rate is so low that we cannot charge classified accounts, and would, therefore, appreciate a remittance with order. No advertisement accepted for less than 50 cents.

REAL ESTATE

WILL EXCHANGE West Texas cattle ranch for unimproved or improved land in Florida. What have you? Give price and full particulars. T. E. Bartlett, 3410 McKinley Ave., El Paso, Texas.

"BOOK OF TRUTH"

For planters of new groves is yours for the asking, Write Today.

OCKLAWAHA NURSERIES INC.

"Pedigreed Citrus Trees"

Lake Jem, Florida

FOR SALE—Pineapple land in winterless Florida. \$15 an acre. Almont Ake, Venus, Fla.

WANT TO SELL HALF INTEREST IN FIFTEEN ACRE SATSUMA BEARING GROVE ON HIGHWAY NEAR PANAMA CITY. ROBT. LAMBERT, OWNER. FOUNTAIN, FLA.

SATSUMA BUDWOOD from Bearing Trees. Hills Fruit Farm, Panama City, Fla.

WANT TO hear from owner having farm for sale; give particulars and lowest price. John J. Black, Box 93, Chippewa Falls, Wisconsin.

WANTED—To hear from owner of land for sale. O. Hawley, Baldwin, Wis.

MISCELLANEOUS

FOR SALE: Packing House Machinery Outfit, complete, 2 car per day capacity, first class condition. The owner is re-placing with new four car capacity outfit. Florida Citrus Machinery Co., Dunedin, Fla.

FOR SALE—Dairy and stable manure, car lots. Link & Bagley, Box 464, Tampa, Fla.

WHITE WYANDOTT Cockrels, regal strain—the best in the country, direct from Martin pens. Utility and show birds \$5.00 each; also eggs for hatching \$5.00 per 15. W. A. King, Gen. Del., St. Petersburg, Fla.

SELECT CITRUS fruit trees for home and commercial planting, special summer prices. A. E. Nichols, Box 262W, Tampa, Fla.

HIGH BLOOD PRESSURE easily, inexpensively overcome, without drugs. Send address. Dr. J. B. Stokes, Mohawk, Fla.

WANTED

COMPLETE LINE OF CITRUS GROWERS' SUPPLIES

A well known reputable firm of national scope, marketing certain materials required by citrus growers, is extending its line of merchandise to cover complete requirements of its customers.

If you have something excellent to merchandise—fertilizer, orchard heaters, pest control material or equipment, or any similar product for wide distribution—I can tell you whom you should see. Address: J. T. Pierson, 503 South Union Drive, Los Angeles, Calif.

BEGGARWEED SEED. Place your order for beggarweed seed now and be assured of delivery. Write for special prices. Wm. G. Ranney, Box 297, Monticello, Fla.

PUREBRED PULLETS FOR SALE—White Leghorns and Anconas ready to ship. Barred Rocks and R. I. Reds shortly. Several hundred yearling White Leghorn hens now laying 70%. Write or wire for prices. C. A. Norman, Dr. 1440, Knoxville, Tenn.

FOR SALE: Skinner Washer, 4 runway, 15 foot, good condition, owner is replacing by a 6 runway, 18 foot machine. Florida Citrus Machinery Co., Dunedin, Fla.

LAREDO SOY BEANS, considered free from nematode, excellent for hay and soil improvement. Write the Baldwin County Seed Growers Association, Loxley, Alabama, for prices.

FARMER AGENTS: Make \$25.00 weekly selling Comet Sprayers. Profitable winter employment. You take orders. We deliver and collect. Commissions weekly. Established 35 years. Particulars free. Rusler Co., Box C-18, Johnstown, Ohio.

FOR SALE—All varieties bananas and citrus trees. D. A. Nigels, Palm Harbor, Fla.

FOR SALE: 5 runway foot Spiral Polisher. Owner is replacing by an 8 runway, 16 foot, spiral polisher. Florida Citrus Machinery Co., Dunedin, Fla.

RUNNER peanuts—Spanish peanuts Early speckled - Osceola - White Chinese and Bunch Velvet Beans. All varieties peas and Soybeans. Large or small lots. H. M. Franklin, Tennille, Georgia.

AVOCADOS - SEED — Grafted. Reliable bearers only. John B. Beach, West Palm Beach, Florida.

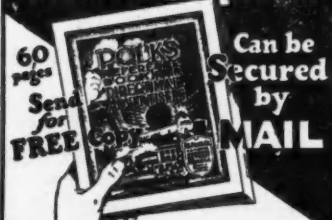
PLANT AVOCADOS in Redland Section, Dade County, where they thrive best. Best paying crop in United States. Send for prospectus. Brooks Properties, Realty Board Bldg., Miami.

BABY CHICKS: Send no money, shipped C. O. D., pay mail man when delivered. Leghorns \$14.00 per 100; reds, orpingtons, minorcas \$16.00; mixed \$18.00; live delivery, postpaid. Florida Baby Chickery, Lakeland, Florida.

COW PEAS. Brabham's, Irons and Whippoorwills. Nice clean stock. Chase & Co., Sanford, Florida.

ROUGH LEMON Seedlings in any quantity, special summer sale, very attractive prices. A. E. Nichols, Box 262W, Tampa, Fla.

Orders-Inquiries



POLK'S REFERENCE BOOK and Mailing List Catalog

Gives counts and prices on over 8,000 different lines of business. No matter what your business, in this book you will find the number of your prospective customers listed. Valuable information is also given as to how you can use the mails to secure orders and inquiries for your products or services.

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